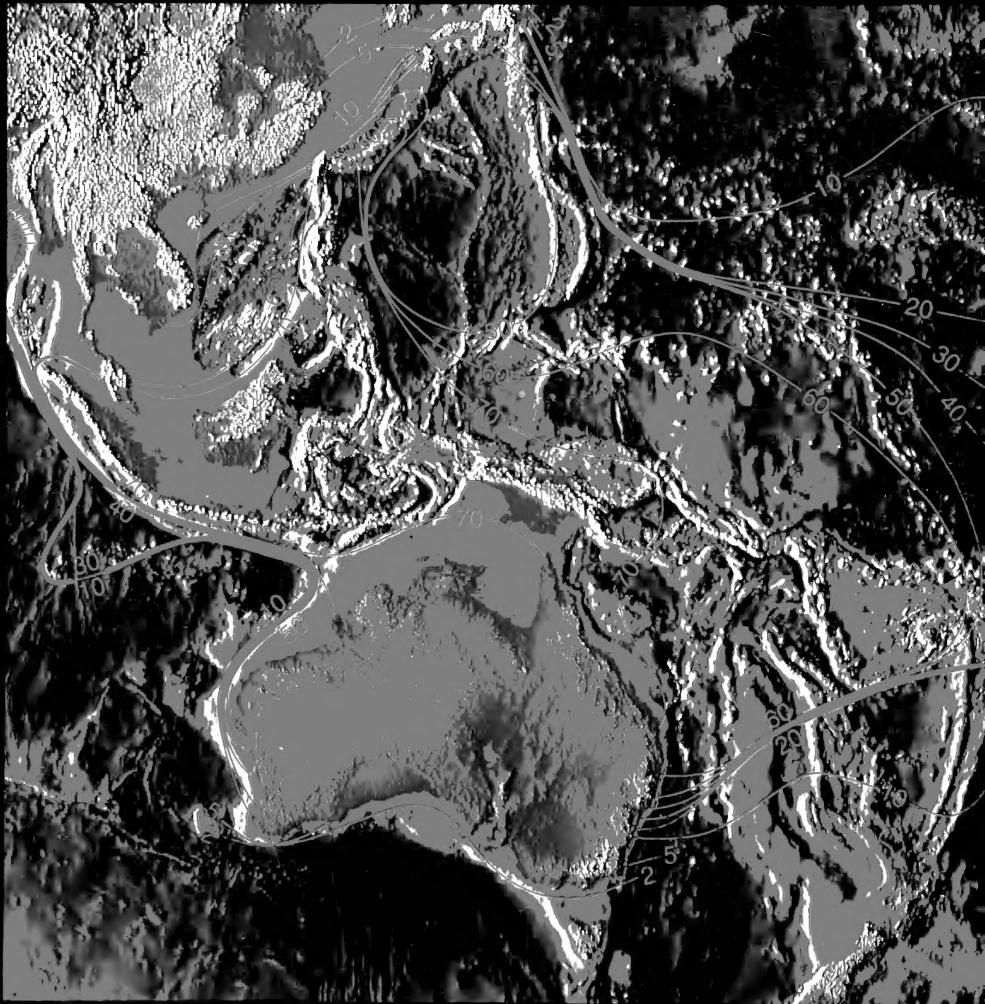


# *A Biogeographic Database of Hermatypic Corals*

Species of the Central Indo-Pacific  
Genera of the World



J.E.N. Veron



AUSTRALIAN INSTITUTE OF MARINE SCIENCE  
MONOGRAPH SERIES Volume 10



*A Biogeographic Database of  
Hermatypic Corals*



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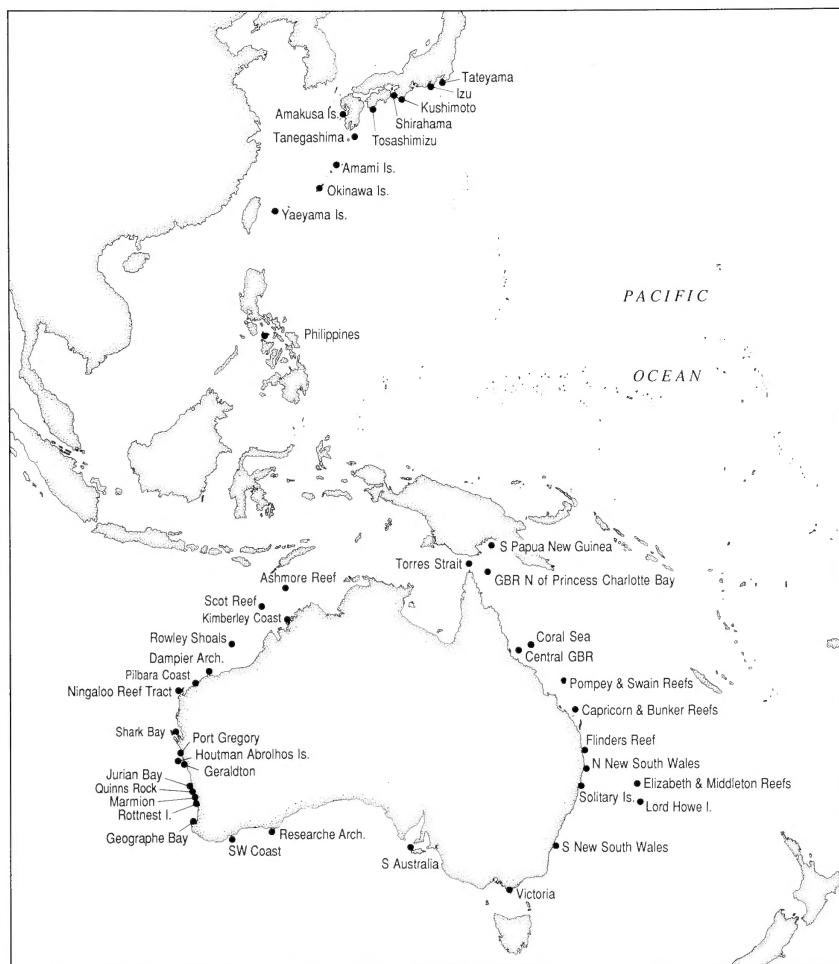
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**Figure 1.** Location map for Central Indo-Pacific study sites.



*Distribution,  
Abundance and  
Geographic Variation in  
Central Indo-Pacific Species*



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# 1

## *Geographic Regions and Data Characteristics*

This volume summarises the distribution, abundance and geographic variation of a studied subset of hermatypic corals of the Central Indo-Pacific. Geographically, this area extends from Indonesia and Thailand in the west to the western border countries of the Pacific basin in the east; and from Japan in the north to Australia in the south. Biologically, it is the world's centre of hermatypic coral diversity (Fig. 2).

Species-level biogeographic data are presented in a compressed form which overviews regional detail (see Note 1, p. 22), but which is intended to preserve accuracy as far as possible in general statements. These data are not analysed or discussed in this volume; this will be done elsewhere.

Data are presented in three levels of taxonomic reliability which should not be confused: (a) original, comprehensive, field and laboratory studies of Central Indo-Pacific species; (b) non-original, non-comprehensive species-level studies within the Central Indo-Pacific; (c) records of Central Indo-Pacific species from elsewhere in the Indo-Pacific.

### *(a) Primary data: from original studies*

#### *Characteristics*

All data were collected from original field studies by the author and his colleagues specifically for taxonomic and biogeographic purposes.

They are based on a uniform taxonomy, facilitating direct and detailed comparisons between different biogeographic regions. Taxonomic and identification strengths, weaknesses and errors are uniform.

They include estimates of abundance and summary observations of geographic variation in colony formation, skeletal morphology, ecology and colour.

They are comprehensive presence/absence records for specific sites along the three major continental coastlines of the Central Indo-Pacific (Fig. 1).

#### *Use in this volume*

##### **(a) All descriptive accounts of species**

All descriptive accounts of species, including geographic variation in abundance, colony formation, skeletal morphology, ecology and colour.

##### **(b) Central Indo-Pacific latitudinal distributions**

All distribution records listed, for all species, under the heading *Central Indo-Pacific latitudinal distribution*. These are the three latitudinally contiguous regions in the Central Indo-Pacific which extend from very diverse tropical reefs at low latitudes to the extremes of hermatypic coral distribution at temperate high latitudes. These three regions are:

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## GEOGRAPHIC REGIONS AND DATA CHARACTERISTICS

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(1) *Southern Papua New Guinea and Eastern Australia.* Biogeographic data, including presence/absence records, are summarised for each species for the following locations. These records, summarised in Table 1, are believed to be comprehensive for all localities except the Coral Sea (see p. 17).

(a) S Papua New Guinea	{}	the Great Barrier Reef
(b) Coral Sea		
(c) Torres Strait		
(d) GBR N of Princess Charlotte Bay		
(e) GBR S of Princess Charlotte Bay, excluding the Pompey, Swain, Capricorn and Bunker Reefs		
(f) Pompey and Swain Reefs		
(g) Capricorn and Bunker Reefs		
(h) Flinders Reef (near Brisbane)		
(i) Elizabeth and Middleton Reefs		
(j) Lord Howe I.		
(k) Solitary Is.		
(l) N New South Wales		
(m) S New South Wales		
(n) Victoria		
(o) S Australia		

(2) *Western Australia.* Biogeographic data, including presence/absence records, are summarised for each species for the following locations. These records, summarised in Table 2, are believed to be comprehensive for all localities. Additional records for the Kimberley and Pilbara Coasts and Shark Bay are included in the text and/or Table 2 (see below).

(a) Ashmore Reef	{}	shelf-edge atolls
(b) Scott Reef		
(c) Rowley Shoals		
(d) Dampier Archipelago		
(e) Ningaloo Reef Tract		
(f) Houtman Abrolhos Is.		
(g) Port Gregory		
(h) Geraldton		
(i) Jurian Bay		
(j) Marmion		
(k) Rottnest I.		
(l) Geographe Bay		
(m) SW coast		
(n) Researche Archipelago		

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## GEOGRAPHIC REGIONS AND DATA CHARACTERISTICS

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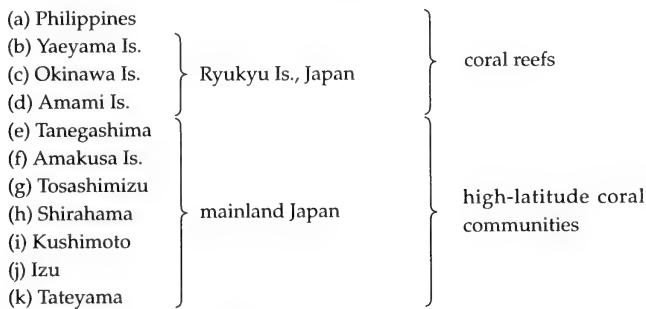
Additional records, but not necessarily representative ones, were obtained from collections of the Western Australian Museum as follows:

In the north are twelve islands or island archipelagoes adjacent to the Kimberley region, as well as several coastal locations south to Broome: these are collectively referred to as the 'Kimberley coast'.

Further south, between the Dampier Archipelago and NW Cape, are seven islands and island archipelagoes: these are collectively referred to as the 'Pilbara coast'.

Five islands, forming the western border of Shark Bay (north to Point Quobba) are collectively referred to as the 'Shark Bay region'.

(3) *Philippines and Japan*. Biogeographic data, including presence/absence records, are summarised for each species for the following locations. These records, summarised in Table 3, are believed to be comprehensive for all localities.



### (c) Additional Central Indo-Pacific regions

Comprehensive distribution records for Cocos (Keeling) Atoll, Thailand, Hong Kong and Vanuatu. These records are listed, for each species, under the heading *Additional Central Indo-Pacific Records*. Biogeographic data have the same characteristics as the above regions, differing only in that they do not form part of any major latitudinally contiguous distribution.

### (b) Secondary data: from non-original Central Indo-Pacific studies

#### *Characteristics, uses in this volume and geographic regions covered*

Used for distribution records, but not records of species attributes.

Taxonomic and identification weaknesses and errors are not equal.

Data are not comprehensive for any one country and are not suitable for quantitative analysis.

Taxonomic reliability varies greatly from one data source to the next. Records that appeared doubtful in original sources have been re-evaluated wherever possible.

Records are strongly biased in favour of species described in *Scleractinia of eastern Australia* and *Corals of Australia and the Indo-Pacific*. These data, therefore, are not intended to indicate diversity.

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## GEOGRAPHIC REGIONS AND DATA CHARACTERISTICS

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Combined with primary data, records are listed under the heading *Additional Central Indo-Pacific Records*.

### *(c) Tertiary data: from non-original Indo-Pacific-wide studies*

#### *Characteristics, uses in this volume and geographic regions covered*

Were obtained from all sources, including relevant publications listed, pp.343-345.

Combined with primary and secondary data, these records are used in the determination of longitudinal distributions. They are indicative only and are very prone to identification error as well as error due to incomplete study. They span the full range of the Indo-Pacific.

## GEOGRAPHIC REGIONS AND DATA CHARACTERISTICS

**Table 1.** Summary of the distribution of hermatypic corals in the principal geographic regions of Southern Papua New Guinea and Eastern Australia. The species composition of all zones except the Coral Sea (see text) is considered to be highly representative.

**GEOGRAPHIC REGIONS AND  
DATA CHARACTERISTICS**

<i>Astropora ocellata</i>	X X X X X - X - X - - - -	<i>Favia mathaii</i>	X X X X X X X - X - - - -
<i>Astropora</i> sp. E Australia	- - - X X - - - - - - - -	<i>Favia maxima</i>	- - X X X X X - X - - - -
<i>Astropora</i> sp. PNG	X - - - - - - - - - - - -	<i>Favia pallida</i>	X X X X X X X X X X - - - -
<i>Australogyra zelli</i>	X - X X X X - - - - - - -	<i>Favia rotumana</i>	X X X X X X X X - X X - - -
<i>Barabattoia amicorum</i>	- X X X X - X - - - - - -	<i>Favia rotundata</i>	X X - X X X X - - - - - -
<i>Blastomussa merleti</i>	X - X X X - X - - X - - -	<i>Favia speciosa</i>	X X - X X - X X X X - - - -
<i>Blastomussa wellsi</i>	X X X X X - - X - - - - -	<i>Favia stelligera</i>	X X X X X X X X - - - X - -
<i>Catalaphyllia jardinei</i>	- - X X X - X - - - - - -	<i>Favia veroni</i>	X X - X X - - - - - - - -
<i>Caulastrea curoata</i>	X X X X X - - - - - - - -	<i>Favia</i> sp. 1 PNG	X - X - - - - - - - - - -
<i>Caulastrea echinulata</i>	X - - X X - - - - - - - -	<i>Favia</i> sp. 2 PNG	X - - - - - - - - - - - -
<i>Caulastrea furcata</i>	X X X X X - - - - - - - -	<i>Favites abdita</i>	X X X X X - X X X X X X - -
<i>Caulastrea tumida</i>	- X - X X - - - - - - - -	<i>Favites chinensis</i>	X - X X X - X X X - - - -
<i>Coeloseris mayeri</i>	- X X X X - X - - - - - -	<i>Favites complanata</i>	X X X X X - - - X - - - -
<i>Coscinaraea columna</i>	X X X X X X X X X X X - - -	<i>Favites flexuosa</i>	X X X X X - X X X X X X - -
<i>Coscinaraea crassa</i>	X X - - - - - - - - - - -	<i>Favites halicora</i>	X X X X X - X - X - - - -
<i>Coscinaraea exesa</i>	X X X X X X X X - X - - -	<i>Favites pentagona</i>	X X X X X - X X - - - - -
<i>Coscinaraea marshae</i>	- - - - - - - - - - - - X	<i>Favites russelli</i>	- X X X X X X X - X X - - -
<i>Coscinaraea mcneilli</i>	- - - - - - - - - - - X X	<i>Fungia concinna</i>	X X X X X X - - - - - - -
<i>Coscinaraea wellsi</i>	X X X X X - - X X - - - -	<i>Fungia corona</i>	- X X X X X - X - - - - -
<i>Ctenactis crassa</i>	- - X X X X - - - - - - -	<i>Fungia danai</i>	- X X X X X X - - - - - -
<i>Ctenactis echinata</i>	X X X X X X - - - - - - -	<i>Fungia fungites</i>	X X X X X X X - - - - - -
<i>Cycloseris costulata</i>	X - X X - - X X X - - X -	<i>Fungia granulosa</i>	X X X X X - X - - - - - -
<i>Cycloseris curvata</i>	X - - - - - - X - - - - -	<i>Fungia horrida</i>	- X X X X X - - - - - - -
<i>Cycloseris cyclolites</i>	- - X X - X - - - - - - -	<i>Fungia klonzingeri</i>	X - X X X - - - - - - - -
<i>Cycloseris erosa</i>	X - - X X - - - - - - - -	<i>Fungia moluccensis</i>	X - X X X X X - - - - - -
<i>Cycloseris marginata</i>	- - - - X - - - - - - - -	<i>Fungia paumotensis</i>	X X X X X X X - - - - - -
<i>Cycloseris patelliformis</i>	X X - X X - X - - - - - -	<i>Fungia repanda</i>	X X X X X X X - - - - - -
<i>Cycloseris sinensis</i>	X - - - - - - - - - - - -	<i>Fungia scabra</i>	X X - X X X - - - - - - -
<i>Cycloseris somerollei</i>	X - X X - - - - - - - - -	<i>Fungia scriposa</i>	- - X X X X - - - - - - -
<i>Cycloseris tenuis</i>	- - - - X - - - - - - - -	<i>Fungia scutaria</i>	X X X X X X X - X - - - -
<i>Cycloseris vaughani</i>	X X - X X - X - - - - - -	<i>Fungia valida</i>	X - X X X - X - - - - - -
<i>Cynarina lacrymalis</i>	X X X X X X X - - - - - -	<i>Galaxea astreata</i>	X X X X X X X - - - - - -
<i>Cyphastrea agassizi</i>	- - X - - - - - - - - - -	<i>Galaxea fascicularis</i>	X X X X X X X - - - - - -
<i>Cyphastrea chalcidium</i>	X X - X X X X - - - - - -	<i>Gardineroseris planulata</i>	X X X X X X X - - - - - -
<i>Cyphastrea japonica</i>	X X X X X X - - - - - - -	<i>Goniastrea aspera</i>	X - - X X - X - - - - - -
<i>Cyphastrea microphtalma</i>	X X X X X X X - X X - - -	<i>Goniastrea australensis</i>	X X X X X X X X X X X X - -
<i>Cyphastrea ocellina</i>	- - - X X - - - - - - - -	<i>Goniastrea edwardsi</i>	X X X X X X X - - - - - -
<i>Cyphastrea serailia</i>	X X X X X X X X X X X - -	<i>Goniastrea favulus</i>	- X - X X - X X X - - - -
<i>Diaseris distorta</i>	- - - X X - X - - - - - -	<i>Goniastrea palauensis</i>	- - X X X - X - X - - - -
<i>Diaseris fragilis</i>	- - - X X X - - - - - - -	<i>Goniastrea pectinata</i>	X X X X X X X X X X X X -
<i>Diploastra heliopora</i>	X X X X X - - - - - - - -	<i>Goniastrea retiformis</i>	X X X X X X X - - - - - -
<i>Duncanopsammia axifuga</i>	X - X X X - - - - - - - -	<i>Goniopora columna</i>	X X X X X - X - - - - - -
<i>Echinophyllia aspera</i>	X X X X X X X X X X X - -	<i>Goniopora djiboutensis</i>	- X X X X - X - X - - -
<i>Echinophyllia echinata</i>	- X X X - - - - - - - - -	<i>Goniopora eclipsensis</i>	- - - - X - - - - - - - -
<i>Echinophyllia echinoporoidea</i>	X - X X X - - - - - - - -	<i>Goniopora fruticosa</i>	X - X X X X - X - - - - -
<i>Echinophyllia orpheensis</i>	X X X X X X X - X - - - -	<i>Goniopora lobata</i>	X X X X X X X X X X X X -
<i>Echinopora gemmacea</i>	- - X X X X X - - - - - -	<i>Goniopora minor</i>	X X X X X X X X - X - - -
<i>Echinopora hirsutissima</i>	- - X X X - - - - - - - -	<i>Goniopora norfolkensis</i>	- X - - X - X - - - - - -
<i>Echinopora horrida</i>	X X X X X X X - - - - - -	<i>Goniopora palmensis</i>	X - X X X X - - - - - - -
<i>Echinopora lamellosa</i>	- X X X X X X - X - - - -	<i>Goniopora pandorensis</i>	- - X X X X - - - - - - -
<i>Echinopora mammiformis</i>	X - X X X X X - - - - - -	<i>Goniopora pendulus</i>	- - - - X - - - - - - -
<i>Echinopora pacificus</i>	- - - X - - - - - - - - -	<i>Goniopora somaliensis</i>	X X X X X X X X - - - - -
<i>Euphyllia ancora</i>	X - X X X - X X X - - - -	<i>Goniopora</i> sp.1 E Australia	- - - X X - - - - - - - -
<i>Euphyllia cristata</i>	X - X X X X X - - - - - -	<i>Goniopora</i> sp.2 E Australia	- X X X X - - - - - - - -
<i>Euphyllia divisa</i>	X - X X X X - - - - - - -	<i>Goniopora stokesi</i>	- X X X X X X - - - - - -
<i>Euphyllia glabrescens</i>	X X X X X X X - - - - - -	<i>Goniopora stutchburyi</i>	- X X X X X X X X X - - -
<i>Euphyllia paraancora</i>	X - - - - - - - - - - - -	<i>Goniopora tenuidens</i>	X X X X X X X - X X - - -
<i>Euphyllia yaeyamaensis</i>	X - - - - - - - - - - - -	<i>Halomilia pileus</i>	X X X X X X - - - - - - -
<i>Favia danae</i>	X X X X X X X - - - - - -	<i>Heliofungia aciculiformis</i>	X X X X X X X - - - - - -
<i>Favia favus</i>	X X X X X X X X - X - - -	<i>Herpolitha limax</i>	X X X X X X X - - - - - -
<i>Favia helianthoides</i>	- X - - - - - - - - - - -	<i>Herpolitha weberi</i>	X X - X - - - - - - - -
<i>Favia laxa</i>	X - X X X X X - - - - - -	<i>Heteropsammia cochlea</i>	- - - X X - X X - - X X X -
<i>Favia lizardensis</i>	X - X X X X - - - - - - -	<i>Hydnophora exesa</i>	X X X X X - X X X X X - - -
<i>Favia maritima</i>	X - - X X - X - - - - - -	<i>Hydnophora grandis</i>	X - - - - - - - - - - - -

**GEOGRAPHIC REGIONS AND  
DATA CHARACTERISTICS**

<i>Hydnophora microconos</i>	X X X X X - X - - - -	<i>Montipora verrucosa</i>	X X X X X X X - - - -
<i>Hydnophora pilosa</i>	- - - - - X - - - -	<i>Montipora</i> sp.1 E Australia	- - - - - X - - - -
<i>Hydnophora rigida</i>	X X X X X X - - - -	<i>Montipora</i> sp.2 E Australia	- X - X - - - - -
<i>Leptastrea bewickensis</i>	- - - X - - X X - - -	<i>Montipora</i> sp.3 E Australia	- - - X X - - - - -
<i>Leptastrea inaequalis</i>	X X X X X X X - X - -	<i>Moseleya latistellata</i>	- - X X X - - - - -
<i>Leptastrea pruinosa</i>	X X X X X - X - - - -	<i>Mycedium elephantinus</i>	X X X X X X X - X - -
<i>Leptastrea purpurea</i>	X X X X X X X - X - -	<i>Mycedium robokaki</i>	X - - - - - - - - -
<i>Leptastrea transversa</i>	X X X X X X X X X - -	<i>Oulophyllia bennettiae</i>	X - X X X - X - - X - -
<i>Leptoria irregularis</i>	- - - X - - - - - -	<i>Oulophyllia crispata</i>	X X X X X X X - X - -
<i>Leptoria phrygia</i>	X X X X X X X X X - -	<i>Oxypora glabra</i>	X - X X X - X - - - -
<i>Leptoseris explanata</i>	X X X X X - X - - - -	<i>Oxypora lacera</i>	X X X X X X X - X - -
<i>Leptoseris foliosa</i>	X X X X X - X - - - -	<i>Pachyseris rugosa</i>	X - X X X X - - - -
<i>Leptoseris gardineri</i>	X - X X X - - - - -	<i>Pachyseris speciosa</i>	X X X X X X X - - - -
<i>Leptoseris hawaiiensis</i>	X X X X X X X - X X -	<i>Palauastrea ramosa</i>	X - - X X - X - - -
<i>Leptoseris mycterosoides</i>	X - X X X X X - - - -	<i>Paraclavarina triangularis</i>	X - X X X X X - - - -
<i>Leptoseris papyracea</i>	X - - - X - - - - -	<i>Pavona bipartita</i>	X - - - - - - - - -
<i>Leptoseris scabra</i>	X X X X X X X - X X -	<i>Pavona cactus</i>	X - X X X X X - - - -
<i>Leptoseris solida</i>	X - - - - - - - - -	<i>Pavona clavus</i>	- X X X - X - - - -
<i>Leptoseris yabei</i>	X X X X X X - - - -	<i>Pavona decussata</i>	X X X X X X X - X - - X - -
<i>Lithophyllum mokai</i>	X - X X X - - - - -	<i>Pavona explanulata</i>	X X X X X X X X X X - -
<i>Lobophyllia corymbosa</i>	X X X X X X X X - -	<i>Pavona madivensis</i>	X X X X X X X X X X - -
<i>Lobophyllia diminutia</i>	X - - - X - - - - -	<i>Pavona minuta</i>	X X X X X X X X X X - -
<i>Lobophyllia hataii</i>	X X X X X - X - - - -	<i>Pavona varians</i>	X X X X X X X X X X - -
<i>Lobophyllia hemprichii</i>	X X X X X X X X - X - -	<i>Pavona venosa</i>	X X X X X - X - - X - -
<i>Lobophyllia pachysepta</i>	X X X X X X X - X - -	<i>Pectinia alcicornis</i>	X - X X X X X - - - -
<i>Lobophyllia robusta</i>	X - - X X - - - - -	<i>Pectinia elongata</i>	X - - - - - - - - -
<i>Madracis kirbyi</i>	- - - X - - - - -	<i>Pectinia lactuca</i>	X - X X X - - - - -
<i>Merulina ampliata</i>	X X X X X X X - X - -	<i>Pectinia paenula</i>	X - X X X X X - - - -
<i>Merulina scabridula</i>	X X X X X X - - - -	<i>Physogyra lichtensteini</i>	X X X X X X X - - - -
<i>Montastrea annuligera</i>	X - X X X X X - - - -	<i>Platygyra contorta</i>	X - - - - - - - - -
<i>Montastrea curta</i>	X X X X X X X X X X - -	<i>Platygyra daedalea</i>	X - X X X X X X X X X -
<i>Montastrea magnistellata</i>	X X - X X X X - - - -	<i>Platygyra lamelina</i>	X - X X X X X X X X - X -
<i>Montastrea valencienensis</i>	X X X X X X X - X - -	<i>Platygyra pini</i>	X X - X X X X - - - -
<i>Montipora acutituberculata</i>	X X X X X X X X X X - -	<i>Platygyra ryukyuensis</i>	X - - X - - - - - -
<i>Montipora angulata</i>	X - X X X - - - - -	<i>Platygyra sinensis</i>	X X X X X X X X X - -
<i>Montipora australiensis</i>	- X - X - - - - -	<i>Plerogyra sinuosa</i>	X - X X X X X - - - -
<i>Montipora calculata</i>	X X X X - - - - -	<i>Plesiastrea versipora</i>	X X X X X X X X X X X X X X X X
<i>Montipora capricornis</i>	- - - X - X - - - -	<i>Pocillopora damicornis</i>	X X X X X X X X X X X X X X X
<i>Montipora corbettiensis</i>	- - X X X - - - - -	<i>Pocillopora eydouxi</i>	X X X X X - X - - - -
<i>Montipora crassituberculata</i>	X X - X X X - - - -	<i>Pocillopora meandrina</i>	- X X X X - - - - - -
<i>Montipora danae</i>	X X X X X X X X X X - -	<i>Pocillopora verrucosa</i>	X X X X X - X - - - -
<i>Montipora digitata</i>	X - - X X - - - - -	<i>Pocillopora woodjonesi</i>	X X - X X - - - - -
<i>Montipora efflorescens</i>	X X X X X - X - X - -	<i>Podabacia crustacea</i>	X X X X X X X - - - -
<i>Montipora floweri</i>	X X - X X - X - - - -	<i>Podabacia motuporensis</i>	X - - - - - - - - -
<i>Montipora foliosa</i>	- X X X X X X X - - -	<i>Polyphyllia talpina</i>	X X X X X X X - - - -
<i>Montipora foveolata</i>	X X X X X X X X X - -	<i>Porites annae</i>	X - X X X X - - - - -
<i>Montipora grisea</i>	X X X X X - - - - -	<i>Porites australiensis</i>	- X - X X X X X - - - -
<i>Montipora hispida</i>	X X X X X X - - - - -	<i>Porites cylindrica</i>	X X X X X X X X - - - -
<i>Montipora hoffmeisteri</i>	X X - X X - X - - - -	<i>Porites deformis</i>	X - - - - - - - - -
<i>Montipora incrassata</i>	- X X X X X X - X - -	<i>Porites densa</i>	X X X X X X - - - -
<i>Montipora informis</i>	X X X X X X - X - - -	<i>Porites evermanni</i>	- - - X X - X - - - -
<i>Montipora millepora</i>	X X - X X - X - - - -	<i>Porites heronensis</i>	X - - - - X - X X - - -
<i>Montipora mollis</i>	X X X X X X X - X X - X	<i>Porites lichen</i>	X X X X X X X - X X - -
<i>Montipora monasteriata</i>	- X X X X - X X - - -	<i>Porites lobata</i>	X X X X X X X X X - -
<i>Montipora nodosa</i>	- X X X X - X - X - -	<i>Porites lutea</i>	X X X X X - X X - -
<i>Montipora peltiformis</i>	X X X X X - X X - - -	<i>Porites mayeri</i>	X - X X X X X - - - -
<i>Montipora spongodes</i>	X - - X - X X X X X - -	<i>Porites murrayensis</i>	X X X X X - X X - -
<i>Montipora spinosa</i>	X X X X X - X X - - -	<i>Porites myrmidonensis</i>	- X X X X X - - - -
<i>Montipora stellata</i>	X - X X X - - - - -	<i>Porites nigrescens</i>	X X X X X X X - - - -
<i>Montipora tuberculosa</i>	X - X X X - X X - - -	<i>Porites rus</i>	- X X X X X - - - -
<i>Montipora turgescens</i>	- X X X X X - X X - -	<i>Porites solidia</i>	X X - X X X - X - X -
<i>Montipora turtlensis</i>	- X X X X - X X X - -	<i>Porites stephensi</i>	- - - - X - - - - -
<i>Montipora undata</i>	X X X X X - X - - -	<i>Porites vaughani</i>	X X X X X X X - -
<i>Montipora venosa</i>	X - X X X - X X - X -	<i>Porites</i> sp. PNG 1	X - - - - - - - - -

**GEOGRAPHIC REGIONS AND  
DATA CHARACTERISTICS**

<i>Porites</i> sp. PNG 2	X - - - - -	<i>Turbinaria frondens</i>	X X X X X X X X X X X X X X - - -
<i>Psammocora contigua</i>	X X X X X - X X X X - - - -	<i>Turbinaria heronensis</i>	- - - X X X X - X - - - -
<i>Psammocora digitata</i>	X - X X X - - X - - - -	<i>Turbinaria mesenterina</i>	X X X X X X X X X - X - X -
<i>Psammocora explanulata</i>	- - X X X - - - - -	<i>Turbinaria patula</i>	X - X X X X X X X X X X - - -
<i>Psammocora haimeana</i>	- - - X X - X X X - X - - -	<i>Turbinaria peltata</i>	X X X X X X X X X X X - - -
<i>Psammocora nierstraszii</i>	- - - X - - - X - - - -	<i>Turbinaria radicalis</i>	- - X X X X X X X X X - - -
<i>Psammocora profundacella</i>	X - X X X - X - - - -	<i>Turbinaria reniformis</i>	X - X X X X - - - - -
<i>Psammocora superficialis</i>	X - X X X - X - X - X X - -	<i>Turbinaria stellulata</i>	X - X X X X X - - - -
<i>Pseudodiderastrea tayamai</i>	X - X X X - - - - -		
<i>Sandalolitha robusta</i>	X X X X X X X - - - - -		
<i>Scapophyllia cylindrica</i>	X X X X X X X - - - - -		
<i>Scolymia australis</i>	- - - - - X X X X X - X X X		
<i>Scolymia vitiensis</i>	X X X X X X X X X X - - - -		
<i>Seriatopora calicinum</i>	X X - X X - X - X - - - -		
<i>Seriatopora hystrix</i>	X X X X X X X X X X - - - -		
<i>Stylarrea punctata</i>	- - - - X - - - - -		
<i>Stylocoeniella armata</i>	X X X X X - X - X - - - -		
<i>Stylocoeniella guentheri</i>	X X X X X - X - X X - - X -		
<i>Stylophora pistillata</i>	X X X X X X X X X X X - - -		
<i>Sympyllia agaricia</i>	X X X X X X X - - - - -		
<i>Sympyllia radians</i>	X X X X X X X - - X - - -		
<i>Sympyllia recta</i>	X X X X X X X - - - - -		
<i>Sympyllia valenciennesi</i>	X X X X X - X - X - - - -		
<i>Trachypyllia geoffroyi</i>	- - X X X - X - - - - -		
<i>Turbinaria bifrons</i>	- - X X X - X X - - - - -		
		<b>TOTAL SPECIES</b>	
		Southern Papua New Guinea	282
		Coral Sea .....	239
		Torres Strait .....	278
		Northern Great Barrier Reef	324
		Central Great Barrier Reef	343
		Pompey and Swain Reefs ..	163
		Capricorn and Bunker Reefs ..	244
		Flinders Reef .....	118
		Elizabeth and Middleton Reefs ..	118
		Lord Howe Island ..	65
		Solitary Island ..	53
		Northern New South Wales	14
		Southern New South Wales	9
		Victoria .....	2
		South Australia	4

*most detailed*

## GEOGRAPHIC REGIONS AND DATA CHARACTERISTICS

**Table 2.** Summary of the distribution of hermatypic corals in principal geographic zones of Western Australia. The species composition of all zones except the Kimberley Coast and Shark Bay is considered to be highly representative.

**GEOGRAPHIC REGIONS AND  
DATA CHARACTERISTICS**

<i>Cycloseris tenuis</i>	X - - - - -	<i>Goniastrea</i> sp. W Aust	- - - - - X - - - - -
<i>Cycloseris vaughani</i>	X XX - - - X - - -	<i>Goniopora columnata</i>	X X - - X X - X - - -
<i>Cynarina lacrymalis</i>	- - X - - - -	<i>Goniopora diboutensis</i>	- X X - X - X - - -
<i>Cyphastrea chalcidium</i>	X XX - - X - - -	<i>Goniopora lobata</i>	X X - X X X X - - - -
<i>Cyphastrea microphthalma</i>	X X X X X X X X X - - -	<i>Goniopora minor</i>	X X X X X X X - - - -
<i>Cyphastrea serailia</i>	X X X X X X X X X - - X -	<i>Goniopora pandorensis</i>	X - - X - - - - - - -
<i>Cyphastrea</i> sp. W Aust	- X - - X - - -	<i>Goniopora pendulus</i>	X - - X X - - X - - - X
<i>Diaseris distorta</i>	- - - - - X - - -	<i>Goniopora somaliensis</i>	X - - - - - - - - - - -
<i>Diaseris fragilis</i>	- - - - - X X - - -	<i>Goniopora</i> sp. 1 W Aust	X - - - - - - - - - - -
<i>Diploastrea heliopora</i>	X XX - X X - - -	<i>Goniopora</i> sp. 2 W Aust	X - - - - - - - - - - -
<i>Duncarpammia axifuga</i>	- - X X X X X - - -	<i>Goniopora</i> sp. 3 W Aust	- - X - X - - - - - -
<i>Echinophyllia aspera</i>	X X - - X X X - - -	<i>Goniopora stokesi</i>	X - - - X - - X X - - -
<i>Echinophyllia echinata</i>	X - - - - - - -	<i>Goniopora stutchburyi</i>	X - X X X - X X - - -
<i>Echinophyllia orpheensis</i>	X X X - X X X X - - -	<i>Goniopora tenuidens</i>	X X X X X X X X X - - -
<i>Echinopora gemmacea</i>	X - - - - - - -	<i>Heliofungia actiniformis</i>	X X - X - - - - - - -
<i>Echinopora hirsutissima</i>	X X - - X - - -	<i>Herpolitha limax</i>	X X X X X X X - - - -
<i>Echinopora horrida</i>	X X X - X X - - -	<i>Herpolitha weberi</i>	- - X X - - - - - - -
<i>Echinopora lamellosa</i>	X X X - X X - - -	<i>Heteropammia cochlea</i>	- - - - X X - X X - - -
<i>Echinopora mammiformis</i>	- X - - - - -	<i>Hydnophora exesa</i>	X X X X X X X X X - - -
<i>Echinopora ashmorensis</i>	X - - - - - - -	<i>Hydnophora microconos</i>	X - - X X X - - - - -
<i>Euphyllia ancora</i>	X X X - X X - - -	<i>Hydnophora pilosa</i>	X X - - X X X - - - -
<i>Euphyllia cristata</i>	- - X - - - - -	<i>Hydnophora rigida</i>	X X X - X X - - - - -
<i>Euphyllia dirisa</i>	- - X - X - - -	<i>Leptastrea bottae</i>	X - - - X - - - - - -
<i>Euphyllia glabrescens</i>	X X X X X X X - - -	<i>Leptastrea inequalis</i>	X X X - - - - - - - -
<i>Favia favus</i>	X X X X X X X X - - X X -	<i>Leptastrea pruinosa</i>	X X X X X X X X - - -
<i>Favia helianthoides</i>	X X - - - X - - -	<i>Leptastrea purpurea</i>	X X X X X X X - - -
<i>Favia laxa</i>	X X X - - - - X - -	<i>Leptastrea</i> sp. W Aust	X - - - - - - - - - -
<i>Favia lizardensis</i>	X X X - X - X - - -	<i>Leptastrea transversa</i>	X X X X - X - - - - -
<i>Favia matthaii</i>	X X X - X X - X - - -	<i>Leptoria phrygia</i>	X X X - X X - - - - -
<i>Favia maxima</i>	X X X - X X - X - - -	<i>Leptoseris explanata</i>	X X X - - X - X - - -
<i>Favia pallida</i>	X X X X X X X - X - - -	<i>Leptoseris folosa</i>	X X - - - X - X - - -
<i>Favia rotundata</i>	X X X - X - - - - -	<i>Leptoseris hawaiiensis</i>	X X X - - X - X - - -
<i>Favia</i> sp. W Australia	- X - - - - - - -	<i>Leptoseris incrassata</i>	X X - - - - - - - - -
<i>Favia speciosa</i>	X X X X X X X - X - - -	<i>Leptoseris myceloseroidea</i>	X X X - - X X X - - -
<i>Favia stelligera</i>	X X X - X X - - - - -	<i>Leptoseris papyracea</i>	- X - - - - - - - - -
<i>Favia veronii</i>	X - - - X - X - - - - -	<i>Leptoseris scabra</i>	X X X - - X - X - - -
<i>Favites abdita</i>	X X - X X X X X X - - X X -	<i>Leptoseris yabei</i>	X X X - - X - X - - -
<i>Favites chinensis</i>	X - - X X X X X - - -	<i>Lithophyllum mokai</i>	X X - - X X - - - - -
<i>Favites complanata</i>	X X - X X X - X - - - X X -	<i>Lithophyllum undulatum</i>	X - - - - - - - - - - -
<i>Favites flexuosa</i>	X - X X X - X X - - - X X -	<i>Lobophylia corymbosa</i>	X - - X X X - X - - - -
<i>Favites halicora</i>	X X X X X X - X - - - X -	<i>Lobophylia diminutia</i>	- - - - X - - - - - -
<i>Favites pentagona</i>	X X X X X X X X - X - - - X	<i>Lobophylia hataii</i>	X X X - X X - X - - -
<i>Favites russelli</i>	X X X - - X X X - - - X X -	<i>Lobophylia hemprichii</i>	X X X X X X X - X - - -
<i>Favites</i> sp. W Australia	- - - - X - X - - -	<i>Merulina ampliata</i>	X X X X X X X - X - - -
<i>Fungia concinna</i>	X X - X X - X - - - - -	<i>Merulina scabricula</i>	X X X - X X - - - - -
<i>Fungia fungites</i>	X X X X X X X - - - - -	<i>Montastrea annuligera</i>	Montastrea curta
<i>Fungia granulosa</i>	X X X - - - - - - - - -	<i>Montastrea magnistellata</i>	X X X X X X X X X X -
<i>Fungia horrida</i>	X X X - - - - - - - - -	<i>Montastrea valenciennesi</i>	X X X X X X X X X X -
<i>Fungia klonzingeri</i>	X - X - - - - - - - - -	<i>Montipyga kenti</i>	- - - X - - - - - - -
<i>Fungia paumotensis</i>	X X X - X X - - - - -	<i>Montipora aequituberculata</i>	X X X - X X X X X - - -
<i>Fungia repanda</i>	X X X X X X - - - - -	<i>Montipora angulata</i>	- X - - - X X X - - -
<i>Fungia scruposa</i>	X X - X - X - - - - -	<i>Montipora austroliensis</i>	- - - - - X - - - - -
<i>Fungia secularia</i>	X X X - - X - - - - -	<i>Montipora calcarea</i>	- - - - X X - X - - -
<i>Fungia valida</i>	X - - - - - - - - - -	<i>Montipora caliculata</i>	X - - - - - X - - - -
<i>Galaxea astreata</i>	X X X X X X X - - - -	<i>Montipora capricornis</i>	- - - - - X X X - - -
<i>Galaxea fascicularis</i>	X X X X X X X - X - - -	<i>Montipora crassituberculata</i>	- - - - - X X - X - - -
<i>Cardinigeris planulata</i>	X X X - X X - - - -	<i>Montipora danae</i>	X X X - X X - X - - -
<i>Goniastrea aspera</i>	X X - X X X X X X - X - X X -	<i>Montipora digitata</i>	X X - X X X - X - - -
<i>Goniastrea australensis</i>	- - X X X X X X X X X X X -	<i>Montipora efflorescens</i>	X X X X X X X - X - - -
<i>Goniastrea edwardsi</i>	X X X - X X X - - - -	<i>Montipora floweri</i>	X X X - - X - - - - -
<i>Goniastrea favulus</i>	X X - - X X X - - - -	<i>Montipora foliosa</i>	X X X - - X - X - - -
<i>Goniastrea palauensis</i>	X X - - X X - X - - - X -	<i>Montipora foveolata</i>	X X X - X X X - - - -
<i>Goniastrea pectiniata</i>	X X X X X X X X - X -	<i>Montipora grisea</i>	X X X - X X - X X - - -
<i>Goniastrea retiformis</i>	X X X X X X X - X X -	<i>Montipora hispida</i>	X X - - X X X X - - - -

GEOGRAPHIC REGIONS AND  
DATA CHARACTERISTICS

<i>Montipora hoffmeisteri</i>	X X X - X X - X - - - - -	<i>Porites heronensis</i>	- - - X X - - X - - - - -
<i>Montipora incrassata</i>	- X - - X - - X - - - - -	<i>Porites lichen</i>	X X X - X X - X - - - - -
<i>Montipora informis</i>	X X X - - X - X - - - - -	<i>Porites lobata</i>	X X X X X X X X X - - - - -
<i>Montipora millepora</i>	X - X X X X - - - - - - -	<i>Porites lutea</i>	X X X - X X X X - - - - -
<i>Montipora mollis</i>	X X X X X X X X X X X X X X - X	<i>Porites nigrescens</i>	X X X - - X - - - - - - -
<i>Montipora monasteriata</i>	X X X - X X X - - - - - - -	<i>Porites rus</i>	X X X - X - - - - - - - -
<i>Montipora nodosa</i>	- X - - X - - X - - - - -	<i>Porites solida</i>	- X X - X X - X - - - - -
<i>Montipora peltiformis</i>	X - X X X X X X X - - - - -	<i>Porites</i> sp. 1 W Australia	- - - - X X - X - - - - -
<i>Montipora</i> sp. 1 W Aust	- - - - - X - - - - - - -	<i>Porites</i> sp. 2 W Australia	- - - - - X - X - - - - -
<i>Montipora</i> sp. 2 W Aust	- - - - - X - X - - - - -	<i>Porites stephensi</i>	X - - - - - - - - - - - -
<i>Montipora</i> sp. 3 W Aust	- - - - - - X - - - - - -	<i>Porites vaughani</i>	X X X X - - - - - - - - -
<i>Montipora spongodes</i>	X - - X X - X X X - - - - -	<i>Psammocora contigua</i>	X X X X X X X X X - - - - -
<i>Montipora spumosa</i>	X X X - X X X - - - - - -	<i>Psammocora digitata</i>	X X X X X X X - X - - - -
<i>Montipora stellata</i>	- - - - X - - X - - - - -	<i>Psammocora explanulata</i>	X - - X X X - X - - - - -
<i>Montipora tuberculosa</i>	- X - - X X X - - - - - -	<i>Psammocora hainiana</i>	- X X - X X - X - - - - -
<i>Montipora turgescens</i>	- X X - X X X X - - - - -	<i>Psammocora hierstazii</i>	X - - - X - - - - - - - -
<i>Montipora turlensis</i>	- - X - X X - X - - - - -	<i>Psammocora profundicella</i>	X X - - X X - X - - - - -
<i>Montipora undata</i>	X X X - X X - - - - - - -	<i>Psammocora</i> sp. 1 W Aust	- - - - - X - - - - - - -
<i>Montipora venosa</i>	X X - X X X - X - - - - -	<i>Psammocora</i> sp. 2 W Aust	X - - - - - - - - - - - -
<i>Montipora verrucosa</i>	X X X - X X - X - - - - -	<i>Psammocora superficialis</i>	X X X - X X X - - - - -
<i>Moselyea latistellata</i>	- - - - X X X X - - - - -	<i>Pseudodistaster taymrai</i>	- - - X X - - - - - - - -
<i>Mycedium elephantotus</i>	X X X - X X - X - - - - -	<i>Sandololithus robustus</i>	X X X - X - - - - - - -
<i>Mycedium robukaki</i>	X - - - - - - - - - - - -	<i>Scaphophyllia cylindrica</i>	X X X - X X - X - - - - -
<i>Oulastrea crispata</i>	- - - X - - - - - - - - -	<i>Scolymia australis</i>	- - - - - - - - - - - X X X - X
<i>Oulophyllia bennettiae</i>	X X X - X - - - - - - -	<i>Seriatopora calendrum</i>	X - - X - X - X - X - - -
<i>Oulophyllia crispata</i>	X X X - X X - X - - - - -	<i>Seriatopora hystrix</i>	X X X X - X - - - - - - -
<i>Oxyrra glabra</i>	X X X - - X - X - - - - -	<i>Stylocoenella armata</i>	- X X -
<i>Oxyrra lacera</i>	X X X - X X X X - - - - -	<i>Stylocoenella guentheri</i>	X X X - X X - X - - - - -
<i>Pachyseris rugosa</i>	X X X - X X - X - - - - -	<i>Stylophora pistillata</i>	X X X X X X X X X - - - - -
<i>Pachyseris speciosa</i>	X X X - X X - X - - - - -	<i>Sympyllia agaricia</i>	X X X - X X -
<i>Palauastrea ramosa</i>	- - - - - X - - - - - - -	<i>Sympyllia radians</i>	X - - - X - - - - - - - -
<i>Pavona cactus</i>	X X X - - - - - - - - -	<i>Sympyllia recta</i>	X X X X X - - - - - - -
<i>Pavona clavus</i>	X X X - - - - - - - - -	<i>Sympyllia valenciennesi</i>	X X X - X -
<i>Pavona decussata</i>	X X X X X X X X - - - - -	<i>Sympyllia wilsoni</i>	- - - - - X X X X X X - X X X X -
<i>Pavona xarfae</i>	X - - - - - - - - - - - -	<i>Trachyphyllia geoffreyi</i>	- - - X X - - - - - - - - -
<i>Pavona explanulata</i>	X X X - X X X X - - - - -	<i>Turbinaria bifrons</i>	- - - X X X X X X - - - - -
<i>Pavona maldivensis</i>	X X X - - X - X - - - - -	<i>Turbinaria conspicua</i>	- - - X X X X X - X - - - -
<i>Pavona minuta</i>	X X X - X X X X - - - - -	<i>Turbinaria frondens</i>	X X X X X X X X X X - X X X X X
<i>Pavona varians</i>	X X X - X X - X - - - - -	<i>Turbinaria mesenterina</i>	X - X X X X X X X X X - X X X X X
<i>Pavona venosa</i>	X X X - - X - - - - - -	<i>Turbinaria patula</i>	- - - X X - - - - - - - -
<i>Pectinia alicornis</i>	X X - - - - - - - - - - -	<i>Turbinaria petala</i>	X X - X X X X X - - - - X X -
<i>Pectinia lactua</i>	X X X - X X - X - - - - -	<i>Turbinaria radicalis</i>	- - - - - - - - - - - X - - -
<i>Pectinia paomia</i>	X X - - X X X - - - - -	<i>Turbinaria reniformis</i>	X X - - X X X - - - X X X X X X
<i>Pectinia teres</i>	X X X - - - - - - - - -	<i>Turbinaria</i> sp. W Aust	- - - - X - X - - - - - - -
<i>Physogyra lichensteinii</i>	X X X - X X - - - - - -	<i>Turbinaria stellulata</i>	X X X - X X - X - - - - - X -
<i>Physophyllia ayleni</i>	- - - X X X - - - - - -		
<i>Platygyra daedalea</i>	X X - - X X X X - - - - -	TOTAL SPECIES	
<i>Platygyra lamellina</i>	X X - X X X X X X X - - -	Ashmore Reef	256
<i>Platygyra pini</i>	X X X - X X X - - - - -	Scott Reef	221
<i>Platygyra ryukyuensis</i>	X X - - - X - - - - - -	Rowley Shoals	193
<i>Platygyra sinesis</i>	X X X X X X - X - - - -	Kimberley Coast	106
<i>Platygyra verweyi</i>	X X X X X X - - - - - -	Dampier Archipelago	218
<i>Plerogyra sinuosa</i>	X X X - X X - - - - - -	Ningaloo Reefs	214
<i>Plesiastrea versipora</i>	X X X X X X X X X - X X X X X	Shark Bay	82
<i>Pocillopora damicornis</i>	X X X X X X X X X X X X X -	Houtman Abrolhos Island	201
<i>Pocillopora eydouxi</i>	X X X - X X X X - - - - -	Port Gregory Region	36
<i>Pocillopora meandrina</i>	X - - - X X - X - - - - -	Geraldton Region	14
<i>Pocillopora verrucosa</i>	X X X - X X X X - - - - -	Jurien Bay Region	11
<i>Pocillopora woodjonesi</i>	X X - - X X - - - - - -	Quinns Rock Region	9
<i>Podabacia crustacea</i>	X X X X X X - - - - - -	Rottnest Island	18
<i>Polyphyllia talpina</i>	X X X X X X - - - - - -	Marmian Region	23
<i>Porites arenatai</i>	- - - X X - X - - - - -	Geographia Bay	14
<i>Porites cylindrica</i>	X X X - X X - - - - - -	South West Coast	9
<i>Porites eridani</i>	X - - - - - - - - - - -	Recherche Archipelago	8
<i>Porites evermanni</i>	X X - - X - - - - - - -		

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**Table 3.** Summary of the distribution of hermatypic corals in the principal geographic zones of the Philippines and Japan. The species composition of all zones is considered to be highly representative.

	Philippines Yayama Group Okinawa Group Amanai Group Tangashima Tosashimizu Amakusa Is. Kushimoto Shirahama Izu Tateyama	Philippines Yayama Group Okinawa Group Amanai Group Tangashima Tosashimizu Amakusa Is. Kushimoto Shirahama Izu Tateyama
<i>Acanthastrea amakusensis</i>	- X - - X X X X X X -	X X X X X - - - -
<i>Acanthastrea bowerbanki</i>	- X X - - X X - - -	X X X X - - - -
<i>Acanthastrea echinata</i>	X X X X' X X X X X -	X X X X - - - -
<i>Acanthastrea hemprichii</i>	- X X X X X X X X -	X X X - - - -
<i>Acanthastrea hillae</i>	X X X X X - X X X -	X - - - -
<i>Acanthastrea ishigakiensis</i>	X X X X X - - - -	X X X X - - - -
<i>Acanthastrea lordhowensis</i>	X - X X X X X X - X	X X X X - - - -
<i>Acanthastrea rotundoflora</i>	X X X X X - - - -	X X X X - - - -
<i>Achelia horrescens</i>	X X - - - - - - -	X X X X - - - -
<i>Acropora abrolhosensis</i>	- X X - - - - - -	X X X X - - - -
<i>Acropora aculeus</i>	X X X - - - - - -	X X X X - - - -
<i>Acropora accuminata</i>	X X X - - - - - -	X X X X - - - -
<i>Acropora akajimensis</i>	X X X - - - - - -	X X X X - - - -
<i>Acropora anthocercis</i>	X X X X X - - - -	X X X X - - - -
<i>Acropora aspera</i>	X X X X - X X X X -	X X X X - - - -
<i>Acropora austera</i>	X X X - - - - - -	X X X X - - - -
<i>Acropora brueggemannii</i>	X X X - - - - - -	X X X X X - - - -
<i>Acropora carduus</i>	X X X X - - - - -	X X X X - - - -
<i>Acropora caroliniana</i>	X - - - - - - - -	X X X X - - - -
<i>Acropora cerealis</i>	X X X X - - - - -	X X X X - - - -
<i>Acropora clathrata</i>	X X X - - - - - -	X X X X - - - -
<i>Acropora copiosa</i>	X X X - X - - - -	X X X X X X X X X -
<i>Acropora cuneata</i>	X X X - X - - - -	X - - - -
<i>Acropora cytherea</i>	X X X X - - - - -	X - - - -
<i>Acropora danai</i>	X X X X - - - - -	X - X X - - - -
<i>Acropora dendrum</i>	X X - - - X X X X -	X X - - - - - - -
<i>Acropora digitifera</i>	X X X X X - X - - -	X X X X X - - - -
<i>Acropora divaricata</i>	X X X X X X X - - -	X - - - - X - - -
<i>Acropora donei</i>	X - - - - - - - -	X - - - - - - - -
<i>Acropora echinata</i>	X X X - - - - - -	X - - - - - - - -
<i>Acropora elegans</i>	- X X - - - - - -	X X X X - - - -
<i>Acropora eiseyi</i>	X X - - - - - - -	X - X - - - - - -
<i>Acropora exquisita</i>	X X X X - - - - -	- - - - - X X X - X
<i>Acropora florida</i>	X X X X X X X X X -	X X X - - - - - -
<i>Acropora formosa</i>	X X X X - - - - -	X X X X X X X X X -
<i>Acropora gemmifera</i>	X X X X - - - - -	X X X - - - - - -
<i>Acropora glauca</i>	- - - X X X X - -	X X X - - - - - -
<i>Acropora grandis</i>	X X X X - - - - -	X X X X - - - - -
<i>Acropora granulosa</i>	X X X X - - - - -	X X X X - - - - -
<i>Acropora horrida</i>	X X X - - - - - -	X X X - - - - - -
<i>Acropora humilis</i>	X X X - - - - - -	X X X - - - - - -
<i>Acropora hyacinthus</i>	X X X X X X X X X -	X X X - - - - - -
<i>Acropora insignis</i>	X X X X - X - - -	X X X - - - - - -
<i>Acropora kirsiyae</i>	X X X - - - - - -	X X X - - - - - -
<i>Acropora latistella</i>	X X X X X - X - - -	X X X - - - - - -
<i>Acropora listeri</i>	X X X - X - - - -	X X X X X - - X X -
<i>Acropora longicyathus</i>	X X X - - - - - -	X - - - -
<i>Acropora loripes</i>	X X X X X X X - -	X X X X X X X X X -
<i>Acropora magnifica</i>	X - - - - - - - -	X - - - -
<i>Acropora microclados</i>	X X X - - - - - -	X X X X - - X - X -
		X X - - - - - - - -
<i>Acropora microphthalmia</i>	X X X X X - - - -	
<i>Acropora millepora</i>	X X X X X - - - -	
<i>Acropora mirabilis</i>	X X X - X - - - -	
<i>Acropora monticulosa</i>	X X X - - - - - -	
<i>Acropora multiacuta</i>	X - - - - - - - -	
<i>Acropora mana</i>	X X X X - - - -	
<i>Acropora nasuta</i>	X X X X - - - -	
<i>Acropora nobilis</i>	X X X X - - - -	
<i>Acropora palifera</i>	X X X X - - - -	
<i>Acropora paniculata</i>	X X X - - - - - -	
<i>Acropora parilis</i>	X X X X - - - -	
<i>Acropora pruinosa</i>	- - - - - X X - - X	
<i>Acropora pulchra</i>	X X X X - - - -	
<i>Acropora ramblei</i>	X - - - - - - - -	
<i>Acropora robusta</i>	X X X X - - - -	
<i>Acropora rosaria</i>	- X X X - - - -	
<i>Acropora samoensis</i>	X X X X X - - - -	
<i>Acropora sarmientosa</i>	X X X - - - - - -	
<i>Acropora secale</i>	X X X X - - - -	
<i>Acropora sekiseiensis</i>	- X X X - - - -	
<i>Acropora selago</i>	X X X X - - - -	
<i>Acropora solitariensis</i>	X X X X X X X X X X -	
<i>Acropora spicifera</i>	X - - - - - - - -	
<i>Acropora stodartii</i>	X - - - X - - - -	
<i>Acropora striata</i>	- X X X - - - -	
<i>Acropora subglabra</i>	X X - - - - - - - -	
<i>Acropora subulata</i>	X X X X X X X - - -	
<i>Acropora tanegashimeensis</i>	- - - - X - - - -	
<i>Acropora tenella</i>	X X - - - - - - - -	
<i>Acropora tenuis</i>	X X X X - - - -	
<i>Acropora teres</i>	X - X - - - - - -	
<i>Acropora tumida</i>	- - - - - X X X - X	
<i>Acropora valenciennei</i>	X X X - - - - - -	
<i>Acropora valida</i>	X X X X X X X X X -	
<i>Acropora vaughani</i>	X X X - - - - - -	
<i>Acropora verueyi</i>	- X X X X - - - -	
<i>Acropora wallaceae</i>	X X X - - - - - -	
<i>Acropora williamsi</i>	X X X X X - X - - -	
<i>Acropora yongei</i>	X X X - - - - - -	
<i>Acropora sp. (Philippines)</i>	X - - - - - - - -	
<i>Acropora sp. 1 (Japan)</i>	- X - - - - - - -	
<i>Acropora sp. 2 (Japan)</i>	- - - - X - - - -	
<i>Alveopora allangi</i>	X X X - - - - - -	
<i>Alveopora catalai</i>	X X - - - - - - -	
<i>Alveopora excelsa</i>	X X X X X - X - X -	
<i>Alveopora fenestrata</i>	X - - - - - - - -	
<i>Alveopora japonica</i>	- - - - X X X X X X -	
<i>Alveopora marionensis</i>	X - - - - - - - -	
<i>Alveopora spongiosa</i>	X X X X - - X - X -	
<i>Alveopora tizardi</i>	X X - - - - - - - -	

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<i>Alveopora verrilliana</i>	X X X X - - - - -	<i>Echinopora gemmacea</i>	X X X X - - - - -
<i>Anacropora forbesi</i>	X X X - - - - - -	<i>Echinopora hirsutissima</i>	X - - - - - - - -
<i>Anacropora matthai</i>	X X X - - - - - -	<i>Echinopora horrida</i>	X - - - - - - - -
<i>Anacropora puerogalerae</i>	X X X - - - - - -	<i>Echinopora lamellosa</i>	X X X X X X X - - -
<i>Anacropora reticulata</i>	X X - - - - - - -	<i>Echinopora mammiformis</i>	X X - - - - - - -
<i>Anacropora spinosa</i>	X X - - - - - - -	<i>Echinopora pacificus</i>	X X X X - - - - -
<i>Anacropora sp.</i>	X X - - - - - - -	<i>Euphyllia ancora</i>	X X X X X X X X X - X
<i>Astreopora cucullata</i>	X - - - - - - -	<i>Euphyllia cristata</i>	X X X - - - - - -
<i>Astreopora explanata</i>	X X - - X - - - -	<i>Euphyllia divisa</i>	X X - - - - - - -
<i>Astreopora gracilis</i>	X X X X - X - X -	<i>Euphyllia glabrescens</i>	X X X X - - - - -
<i>Astreopora incrustans</i>	X X X X X X - X X -	<i>Euphyllia parancora</i>	X - - - - - - - -
<i>Astreopora listeri</i>	X X X X - - - -	<i>Euphyllia paradivisa</i>	X - - - - - - - -
<i>Astreopora macrostoma</i>	- - X - X - - - -	<i>Euphyllia paraglabrescens</i>	- - - - X - - - -
<i>Astreopora myriophthalma</i>	X X X X X X X X - -	<i>Euphyllia yaeyamaensis</i>	X X X X - - - - -
<i>Astreopora ocellata</i>	X X - - - - - - -	<i>Favia danae</i>	X X X - X X - - - -
<i>Astreopora suggesta</i>	X X - - - - - - -	<i>Favia favaus</i>	X X X X X X X X X X -
<i>Australogyra zelli</i>	X - - - - - - -	<i>Favia helianthoides</i>	X X - - X X X - - -
<i>Australomussa rouleyensis</i>	X X X X - - - - -	<i>Favia laxa</i>	X X X - X X X X X - -
<i>Barabattoia amicorum</i>	X X X X X X X X X -	<i>Favia lizardensis</i>	X X X X X X X X X - X
<i>Blastomussa merleti</i>	X X X X - - - - -	<i>Favia maritima</i>	X X X X - - - - -
<i>Blastomussa wellsi</i>	X X X X X X X X X - X	<i>Favia mathai</i>	X X X X - - - - -
<i>Catalaphyllia jardinei</i>	X - - - - - X X -	<i>Favia maxima</i>	X X X X X X - X -
<i>Caulastrea curvata</i>	X - X - - - - - -	<i>Favia pallida</i>	X X X X X X X X X - -
<i>Caulastrea echinulata</i>	X X X X - - - - -	<i>Favia rotundata</i>	X X X X X - - - - -
<i>Caulastrea furcata</i>	X X X X - - - - -	<i>Favia speciosa</i>	X X X X X X X X X X X
<i>Caulastrea tumida</i>	X X X X X X X X X - X	<i>Favia stelligera</i>	X X X X - - - - -
<i>Coeloseris mayeri</i>	X X X - - - - - -	<i>Favia veronii</i>	X X X X X X X X X - -
<i>Coscinaraea columna</i>	X X X X X X X X X X -	<i>Favia sp.</i>	X - X - - - - - -
<i>Coscinaraea crassa</i>	X - X X X - - X -	<i>Favites abdita</i>	X X X X X X X X X X -
<i>Coscinaraea exesa</i>	X - X - - - - - -	<i>Favites chinensis</i>	X X X X X X X X - - -
<i>Coscinaraea hahazimaensis</i>	- - - X X - X - X -	<i>Favites complanata</i>	X X X X X X X X X X X
<i>Coscinaraea monile</i>	- - X - X X - - - X	<i>Favites flexuosa</i>	X X X X X X X X X X X
<i>Coscinaraea wellsi</i>	X - X - X - - - -	<i>Favites halicora</i>	X X X - - - - - -
<i>Ctenactis crassa</i>	X X X X - - - - -	<i>Favites pentagona</i>	X X X X X X X X X X -
<i>Ctenactis echinata</i>	X X X X - X - - -	<i>Favites russelli</i>	X X X X X X X X X X -
<i>Cycloseris costulata</i>	X X X - - - - - -	<i>Favites stylifera</i>	- X X X - - - - -
<i>Cycloseris curvata</i>	X X X - - - - - -	<i>Fungia concinna</i>	X X X X - - - - -
<i>Cycloseris cyclotiles</i>	X - X X - - X X X X X	<i>Fungia corona</i>	X - - - - - - - - -
<i>Cycloseris erosa</i>	X - - - - - - - -	<i>Fungia danae</i>	X X X - - - - - -
<i>Cycloseris hexagonalis</i>	X X - - - - - - -	<i>Fungia fralinae</i>	X - - - - - - - - -
<i>Cycloseris patelliformis</i>	X X X - X - - X -	<i>Fungia fungites</i>	X X X X - X - - - -
<i>Cycloseris sinensis</i>	X X X - - - - - -	<i>Fungia granulosa</i>	X X X X - - - - -
<i>Cycloseris somerollei</i>	X - - - - - - - -	<i>Fungia horrida</i>	X - - - - - - - - -
<i>Cycloseris tenuis</i>	X - - - - - - - -	<i>Fungia moluccensis</i>	X X X - - - - - -
<i>Cycloseris vaughani</i>	X X X X - X - - -	<i>Fungia paumotensis</i>	X X X X - - - - -
<i>Cycloseris sp.</i>	X - - X - - - - -	<i>Fungia repanda</i>	X X X X - - - - -
<i>Cynarina lacrymalis</i>	X X X - X X X X X -	<i>Fungia scabra</i>	X X X - - - - - -
<i>Cyphastrea agassizi</i>	X X X X - - - - -	<i>Fungia scruposa</i>	X X X X - - - - -
<i>Cyphastrea chalcidicum</i>	X X X X X X X X X X -	<i>Fungia scutaria</i>	X X X X X X - - - -
<i>Cyphastrea decadia</i>	X X X - - - - - -	<i>Fungia spinifera</i>	X - X - - - - - -
<i>Cyphastrea japonica</i>	X X X X X X X X X X -	<i>Fungia validia</i>	- X X X - - - - -
<i>Cyphastrea microphthalmia</i>	X X X X X X X X X - - X	<i>Fungia sp.</i>	X - - - - - - - -
<i>Cyphastrea ocellina</i>	X X - - - - - - -	<i>Galaxea alta</i>	X - - - - - - - -
<i>Cyphastrea serialia</i>	X X X X X X X X X X -	<i>Galaxea astreata</i>	X X X - - X - - -
<i>Diaseris distorta</i>	X X X - - - - - -	<i>Galaxea fascicularis</i>	X X X X X X - - -
<i>Diaseris fragilis</i>	X X X - - - - - -	<i>Gardineropora planulata</i>	X X X X X - - - -
<i>Diplastrea heliopora</i>	X X X - - - - - -	<i>Goniastrea aspera</i>	X X X X X X - X - X -
<i>Echinophyllia aspera</i>	X X X X X X X X X X -	<i>Goniastrea australensis</i>	X X X X X X X X X X -
<i>Echinophyllia chirurata</i>	X X X X - X X - - -	<i>Goniastrea deformis</i>	- - - X X X X X X X X
<i>Echinophyllia echinoporoidea</i>	X X X X - - - - -	<i>Goniastrea edwardsi</i>	X X X X - X - - - -
<i>Echinophyllia nishihirai</i>	- X X - - X - - - -	<i>Goniastrea favulus</i>	X X X X X X X X X X -
<i>Echinophyllia orpheensis</i>	X X X - - - - - -	<i>Goniastrea palauensis</i>	X - - - - - - - - -
<i>Echinophyllia patula</i>	X X X - X - - - -	<i>Goniastrea pectinata</i>	X X X X X X X X - - - -
<i>Echinopora ashmorensis</i>	X - - - - - - - -		

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<i>Goniastrea retiformis</i>	X X X X X X X X - - -	<i>Montipora aequituberculata</i>	X X X X X X - - - - -
<i>Goniopora burgosi</i>	X X X - - - - - - -	<i>Montipora altasepta</i>	X X - - - - - - - - -
<i>Goniopora cellulosa</i>	- - - X X X - - - - -	<i>Montipora angulata</i>	X X X X - X - - - - -
<i>Goniopora columnna</i>	X X X X - - - - - X X	<i>Montipora cactus</i>	X X X - - - - - - - -
<i>Goniopora diboutiensis</i>	X X - X X - - - - - -	<i>Montipora caliculata</i>	X X - - - - - - - - -
<i>Goniopora fruticosa</i>	X X X - - - - - - -	<i>Montipora capitata</i>	X X - - - - - - - - -
<i>Goniopora lobata</i>	X X X - X X X X X X X	<i>Montipora capricornis</i>	X - - - - - - - - - -
<i>Goniopora minor</i>	X X X X - - - - - -	<i>Montipora cebuensis</i>	X X - - - - - - - - -
<i>Goniopora norfolkensis</i>	X - - - - - - - - - -	<i>Montipora confusa</i>	X - - - - - - - - - -
<i>Goniopora palmensis</i>	X - - - - - - - - - -	<i>Montipora crassituberculata</i>	X - - - - - - - - - -
<i>Goniopora pandoraensis</i>	X X - - - - - - - - -	<i>Montipora danae</i>	X X X X X X X - X - - -
<i>Goniopora pendulus</i>	X - - - X - X X - - -	<i>Montipora digitata</i>	X X X X - - - - - - -
<i>Goniopora polyformis</i>	X - - - - - X - - - -	<i>Montipora efflorescens</i>	X X X - - - - - - - X -
<i>Goniopora somaliensis</i>	X X X X X - - - - - -	<i>Montipora effusa</i>	X X X X - X X X - - -
<i>Goniopora stokesii</i>	X X X - X X X - - - -	<i>Montipora florida</i>	X - - - - - - - - - -
<i>Goniopora stutchburyi</i>	- X X - - X - X X - -	<i>Montipora foliosa</i>	X X X X - - - - - - -
<i>Goniopora tenuidens</i>	X X X - - - - - - - -	<i>Montipora foecula</i>	X X X X - - - - - - -
<i>Goniopora sp.</i>	- X X - - - - X - - -	<i>Montipora friabilis</i>	X X X - X - - - - - -
<i>Gyromilia interrupta</i>	- X - - - - - - - - -	<i>Montipora gainardi</i>	X X X - - - - - - - -
<i>Halomitra pileus</i>	X X X - - - - - - - -	<i>Montipora grisea</i>	X X X - - - - - - - -
<i>Hciofungia actiniformis</i>	X X - - - - - - - - -	<i>Montipora hirsuta</i>	X X X - - - - - - - -
<i>Herpolitha limax</i>	X X X X - - - - - - -	<i>Montipora hispida</i>	X X X X X X X X X X - -
<i>Herpolitha weberi</i>	X X - - - - - - - - -	<i>Montiporahoffmeisteri</i>	X X X X X X - - - - -
<i>Heteropsammia cochlea</i>	X - X - - - - - - - -	<i>Montipora incrassata</i>	- X X X X - - - - - -
<i>Hydnophora bonsai</i>	- - - - X X X X X - -	<i>Montipora informis</i>	X X X - X X X X X - -
<i>Hydnophora exesa</i>	X X X X X X X X X X X	<i>Montipora mactanensis</i>	X X - - - - - - - - -
<i>Hydnophora grandis</i>	X - - - - - - - - - -	<i>Montipora malampaya</i>	X X - - - - - - - - -
<i>Hydnophora microconos</i>	X X X X - - - - - -	<i>Montipora millepora</i>	X X X - X X X X - - -
<i>Hydnophora rigida</i>	X X X X - - - - - -	<i>Montipora mollis</i>	X X X X X X X X X X -
<i>Leptastrea beuvicicensis</i>	- X X X X - - - - -	<i>Montipora monasteriata</i>	X X X - X X - - - - -
<i>Leptastrea inaequalis</i>	X X X - - - - - - -	<i>Montipora orientalis</i>	X - - - - - - - - - -
<i>Leptastrea pruinosa</i>	X X X X - X - - - -	<i>Montipora peltiformis</i>	X X X - - - - - - - -
<i>Leptastrea purpurea</i>	X X X X X X X X X X X	<i>Montipora samarensis</i>	X X X - - - - - - - -
<i>Leptastrea transversa</i>	X X X X - - - - - -	<i>Montipora setosa</i>	X - - - - - - - - - -
<i>Lepitoria irregularis</i>	X X X X - - - - - -	<i>Montipora spongodes</i>	X X - - X X X X X X -
<i>Lepitoria phrygia</i>	X X X X - - - - - -	<i>Montipora spinosa</i>	X X X X X X - - - - -
<i>Leptoseris amitoriensis</i>	- X - - - - - - - -	<i>Montiporastellata</i>	X X X X - - - - - -
<i>Leptoseris explanata</i>	X X X X - - - - - -	<i>Montipora tuberculosa</i>	X X X - - - - - - - -
<i>Leptoseris folosa</i>	X X X X - - - - - -	<i>Montipora turgescens</i>	X X X X X X X X X X -
<i>Leptoseris gardineri</i>	X X - - - - - - - -	<i>Montipora undata</i>	X X X X X X - - - -
<i>Leptoseris hawaiiensis</i>	X X X X X - - - - -	<i>Montipora venosa</i>	X X X X - - - - - - -
<i>Leptoseris incrustans</i>	X X - - - - - - - -	<i>Montipora verrucosa</i>	X X X X - - - - - - -
<i>Leptoseris myctoserooides</i>	X X X X X X X X X X X	<i>Montipora sp.</i>	X X X X - - - - - - -
<i>Leptoseris papryacea</i>	X X X - - - - - - -	<i>Mycedium elephantotus</i>	X X X X X X X X X X -
<i>Leptoseris scabra</i>	X X X X - X - - - -	<i>Mycedium robokaki</i>	X X - - - - - - - - -
<i>Leptoseris solida</i>	X X X - X - - - - -	<i>Oulastrea crispata</i>	X X X X X X X X X X X
<i>Leptoseris yabei</i>	X X X X X - - - - -	<i>Oulophyllia bennetiae</i>	X X X X - - - - - - -
<i>Lithophyllum levoistei</i>	X - - - - - - - - -	<i>Oulophyllia crispa</i>	X X X X X X X X X X -
<i>Lithophyllum lobata</i>	X X X X - - - - - -	<i>Oxypora crassispinosa</i>	X - - - - - - - - - -
<i>Lithophyllum undulatum</i>	X X X - X X X X X - -	<i>Oxypora glabra</i>	X X - - - - - - - - -
<i>Lobophylia corymbosa</i>	X X X X X - - - - -	<i>Oxypora lacera</i>	X X X X X X X X X X -
<i>Lobophylia hawaii</i>	X X X X X - X X - -	<i>Pachyseris foliosa</i>	X - - - - - - - - - -
<i>Lobophylia hemprichii</i>	X X X X X - X X X - -	<i>Pachyseris gemmae</i>	X X X - - - - - - - -
<i>Lobophylia pachyseptia</i>	X X X - - - - - - -	<i>Pachyseris rugosa</i>	X X X X - - - - - - -
<i>Lobophylia robusta</i>	X X X X X - X X - -	<i>Pachyseris speciosa</i>	X X X X X X - - - -
<i>Madracis asanoi</i>	- - - - - X - - - -	<i>Palauastrea ramosa</i>	X X X - - - - - - -
<i>Madracis kirbyi</i>	X - - - - - - - - -	<i>Pavona bipartita</i>	X X X - - - - - - -
<i>Merulina ampliata</i>	X X X X X - - - - -	<i>Pavona cactus</i>	X X X X X X - - - -
<i>Merulina scabridula</i>	X X X X X - - - - -	<i>Pavona clavus</i>	X X X - - - - - - -
<i>Montastrea annuligera</i>	X X X - - - - - - -	<i>Pavona danai</i>	X X X - - - - - - -
<i>Montastrea curta</i>	X X X X X X X X X - -	<i>Pavona decussata</i>	X X X X X X X X X - -
<i>Montastrea magnistellata</i>	X X X X X X - - - -	<i>Pavona xarifae</i>	X - - - - - - - - -
<i>Montastrea multipunctata</i>	X X X - X - - - - -	<i>Pavona explanulata</i>	X X X X X X X X - X -
<i>Montastrea valenciennesi</i>	X X X X X X X X - -	<i>Pavona frondifera</i>	X X X X X - - - - -

**GEOGRAPHIC REGIONS AND  
DATA CHARACTERISTICS**

<i>Pavona maldivensis</i>	X - X X X X - - - - -	<i>Porites sillimanianii</i>	X X X - - - - - - - - -
<i>Pavona minuta</i>	X X X X X - X - - - -	<i>Porites solida</i>	X X X - - - - - - - - -
<i>Pavona varians</i>	X X X X X - - - - X	<i>Porites stephensi</i>	X X X - - - - - - - - -
<i>Pavona venosa</i>	X X X X - - - - - - -	<i>Porites vaughani</i>	X X X - - - - - - - - -
<i>Pavona</i> sp.	X - - - - - - - - -	<i>Porites</i> sp.	X - - - - - - - - - - -
<i>Pectinia alcicornis</i>	X X X - - - - - - - -	<i>Psammocora contigua</i>	X X X X X X - - - - -
<i>Pectinia lactuca</i>	X X X X - X X X X - -	<i>Psammocora decussata</i>	- - X X - - - - - - -
<i>Pectinia paeonia</i>	X X X X - - X X X - -	<i>Psammocora digitata</i>	X X X X - - - - - - -
<i>Pectinia teres</i>	X X - - - - - - - -	<i>Psammocora explanulata</i>	X - - - - - - - - - -
<i>Physogyra exerta</i>	X - - - - - - - - -	<i>Psammocora hainanensis</i>	X X X - - - - - - - -
<i>Physogyra lichtensteini</i>	X X X - - - - - - - -	<i>Psammocora niestraszii</i>	X X X - X - - - - - -
<i>Physogyra ayleni</i>	X X - - - X X X X - -	<i>Psammocora profundacella</i>	X X X X X X X X X X X
<i>Platygyra contorta</i>	X X X X X X X X X X -	<i>Psammocora superficialis</i>	X X X X X X X X X X X
<i>Platygyra daedalea</i>	X X X X X X X X X X -	<i>Psammocora vaughani</i>	- X X - - - - - - - -
<i>Platygyra lamellina</i>	X X X - - - - - - -	<i>Psammocora</i> sp.	X - - - - - - - - - -
<i>Platygyra pini</i>	X X X X - X X - - -	<i>Pseudodiscosira tayamai</i>	X X X - - - - - - - -
<i>Platygyra ryukyuensis</i>	X X X X - - - - - -	<i>Sandalolithus robusta</i>	X X X X - - - - - - -
<i>Platygyra sinensis</i>	X X X X X - - X - -	<i>Scaphophyllia cylindrica</i>	X X X X - - - - - - -
<i>Platygyra verweyi</i>	X X X X X - - - - -	<i>Scolymia vitiensis</i>	X X X - - - - - - - -
<i>Platygyra yaeyamaensis</i>	- X X - - - - - - -	<i>Seriatopora calendrum</i>	X X X X - - - - - -
<i>Plerogyra eurysepta</i>	X - - X - - - - -	<i>Seriatopora hystricula</i>	X X X X - - - - - -
<i>Plerogyra simplex</i>	X - - - - - - - - -	<i>Siderastrea savigniana</i>	X - - - - - - - - - -
<i>Plerogyra sinuosa</i>	X X X X - - - - -	<i>Stylocoeniella armata</i>	X X X - - X - X X X -
<i>Plerogyra turbida</i>	X - - - - - - - - -	<i>Stylocoeniella cocomensis</i>	- X - - - - - - - - -
<i>Plesiastrea versipora</i>	X X X X X X X X X X -	<i>Stylocoeniella guentheri</i>	X X X X X X X X X - -
<i>Pocillopora damicornis</i>	X X X X X X X X X - -	<i>Stylophora pistillata</i>	X X X X X X X X - - -
<i>Pocillopora eydouxi</i>	X X X X - X - - - -	<i>Stylophora</i> sp.	X - X - - - - - - - -
<i>Pocillopora meandrina</i>	X X - - - - - - - -	<i>Sympyllia agaricia</i>	X X X X X X - - - -
<i>Pocillopora verrucosa</i>	X X X X X X - - - -	<i>Sympyllia radians</i>	X X X X X X - - - -
<i>Pocillopora woodjonesi</i>	X X - - - - - - - -	<i>Sympyllia recta</i>	X X X X - X - - - -
<i>Podabacia crustacea</i>	X X X X - - - - - -	<i>Sympyllia valenciennesii</i>	X X X X - X X X X X -
<i>Podabacia motuporensis</i>	X X - - - - - - - -	<i>Trachyphyllia geoffroyi</i>	X X X - X X X X X X -
<i>Polyphyllia talpina</i>	X X X X - - - - -	<i>Turbinaria frondens</i>	X X X X X X X X - X -
<i>Porites annae</i>	X X X - - - - - - -	<i>Turbinaria heronensis</i>	X - - - - - - - - - -
<i>Porites aranetai</i>	X X X - - - - - - -	<i>Turbinaria irregularis</i>	X X X X X X X X X X -
<i>Porites attenuata</i>	X X X X - - - - -	<i>Turbinaria mesenterina</i>	X X X X X X X X - - -
<i>Porites australiensis</i>	X X X - - - - - - -	<i>Turbinaria pettata</i>	X - X X X X X X X X -
<i>Porites cumulatus</i>	X - - - - - - - - -	<i>Turbinaria reniformis</i>	X X X X X X X - - -
<i>Porites cylindrica</i>	X X X - X - - - -	<i>Turbinaria stellulata</i>	X X X X X X X - X X -
<i>Porites deformis</i>	X X - - - - - - - -	<i>Zoopilus echinatus</i>	X X - - - - - - - - -
<i>Porites eridani</i>	X - - - - - - - -		
<i>Porites evermanni</i>	X X X - - - - - - -	<b>TOTAL SPECIES</b>	
<i>Porites heronensis</i>	- - X X X X X X X X X	<i>Philippines</i>	411
<i>Porites horizontalata</i>	X X X - - - - - - -	<i>Yaeyama Group</i>	363
<i>Porites latistella</i>	X X X - - - - - - -	<i>Okinawa Group</i>	337
<i>Porites lichen</i>	X X X X X - - - - -	<i>Amami Group</i>	219
<i>Porites lobata</i>	X X X X - X - - - -	<i>Tanegashima</i>	151
<i>Porites lutea</i>	X X X X - X - - - -	<i>Tosashimizu</i>	127
<i>Porites mayeri</i>	X X - - - - - - - -	<i>Amakusa Island</i>	98
<i>Porites murrayensis</i>	X X X - - - - - - -	<i>Kushimoto</i>	95
<i>Porites negrosensis</i>	X X - - - - - - - -	<i>Shirahama</i>	78
<i>Porites nigrescens</i>	X X X X - - - - -	<i>Izu</i>	45
<i>Porites okinawensis</i>	- - X - - - - - X -	<i>Tateyama</i>	24
<i>Porites rus</i>	X X X X - - - - -		



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## 2 *Data Sources*

### *(a) Primary data: from original studies*

The following data sources incorporate previous studies; these are not re-listed here.

#### **(1) S Papua New Guinea and E Australia:**

Southern Papua New Guinea: Veron and Kelley (1988).

Eastern Australia:

- ¶ Most records have been published in *Scleractinia of Eastern Australia* Parts I to V. Successive parts of this series contain data from study sites not listed in earlier parts and only Parts IV and V contain records from the entire coastline. The present account is thus more complete than this series, and also incorporates additions and changes. Most records are summarised in Veron (1986a); the present account contains subsequent additions and changes.

Records for Flinders Reef (off Brisbane), and Elizabeth and Middleton Reef, together with locality details, are in Veron and Pichon (1982) and Veron and Wallace (1984), but only for the Poritidae and Acroporidae.

Records for Lord Howe I. are in Veron and Done (1979), with subsequent additions (J. Oliver and R. Babcock, pers. comm.). The Poritidae and Acroporidae are revised in Veron and Pichon (1982) and Veron and Wallace (1984).

Records for the Solitary Is. are from Veron *et al.* (1974) with many subsequent updates and revisions after re-visiting the islands. The Poritidae and Acroporidae are revised in Veron and Pichon (1982) and Veron and Wallace (1984).

Records for coastal New South Wales and Victoria and southern Australia are in Veron (1974), Sheppard and Veron (1982) and Smith and Simpson (1990).

Records for the Coral Sea are in Veron and Pichon (1982) and Veron and Wallace (1984), but only the Poritidae and Acroporidae are included in *Scleractinia of Eastern Australia*. Field work was primarily concentrated at the Chesterfield Reefs of the eastern Coral Sea and it is thus possible that many additional species occur in the Coral Sea. For this reason, Coral Sea records are not considered to be complete.

(2) *Western Australia:*

Most records are in Veron and Marsh (1988), summarised in Veron (1986a); the present account contains subsequent additions and changes.

Original records for Rowley Shoals are in Veron (1986b).

Additional records for Shark Bay are in Marsh (1990).

3) *Philippines and Japan:*

Philippines:

Records are from Veron and Hodgson (1989) with subsequent additions and changes. This incorporates the extensive studies of Nemenzo and his colleagues. Original field work was carried out at Bolinao (W Luzon), Puerto Galera, Cebu, Apo I. (N Negros) as well as additional sites studied by Hodgson and Ross (1982) and Ross and Hodgson (1982), including W Palawan. Research collections were studied at the University of the Philippines, the University of San Carlos and Silliman University.

Records from the Philippines are not sufficiently comprehensive to enable regional study within the Philippines and thus the whole archipelago is treated as a single locality in the present account.

Japan:

All records are from Veron (1992a), which incorporates extensive studies of others.

*Records from additional Central Indo-Pacific countries are as follows:*

Cocos (Keeling) Atoll: Veron (1990b)

Hong Kong: Veron (1982)

Thailand:

Veron and Wallace (1985) with subsequent additions and corrections associated with other studies (listed, p. 345).

Vanuatu: Veron (1990a)

**(b) Secondary data: from non-original Central Indo-Pacific studies**

Includes (a) the author's identifications of laboratory specimens where there has been no comprehensive accompanying field work, (b) original work of the author in museums and unpublished field studies, (c) verified synonymies of the author and his colleagues, (d) published illustrations and taxonomic opinion expressed in the taxonomic literature.

Also includes non-taxonomic studies of others using the taxonomic framework of the author and his colleagues, or some recognisable variation of it, or other publications containing identifiable photographs.

Also includes a large number of studies previous to those of the author and his colleagues that have been undertaken in Australia, Japan and the Philippines, and some others that have been undertaken in S Papua New Guinea, Cocos (Keeling) Atoll and Hong Kong. Distribution records and taxonomic opinion from these have been incorporated into the relevant studies of the author and his colleagues; references are not re-listed here.

Taxonomic revisions of genera and families containing biogeographic records of recognisable Central Indo-Pacific species have been used to obtain many distribution ranges. Among many such studies are Bernard (1896) on *Turbinaria* and *Astreopora*; Bernard (1897) on *Montipora* and *Anacropora*; Brook (1892) on *Acropora*; Dinesen (1980) on *Leptoseris*; Hoeksema (1989) on Fungiidae and Lamberts (1982) on *Astreopora*. Further references to taxonomic literature are not listed here. Hoeksema (1989) provides a particularly complete biogeographic account of the Fungiidae.

**(c) Tertiary data: from non-original Indo-Pacific-wide studies**

Tertiary species-level data sources are not separated from generic data sources (see p. 343) because they integrate and thus various qualifications apply to references to most species. However, the most frequently used data sources for the western distribution limits of species are (from W to E), Scheer and Pillai (1983), Sheppard and Sheppard (1985, 1991), Sheppard (1985), Pichon (1964, 1971), Faure (1977, 1982), Pillai and Scheer (1976), Wafar (1986) Scheer and Pillai (1974) and a complex of recent studies in Central Indo-Pacific (listed above). Eastern distribution limits are less easily sourced, but include (from E to W), recent studies in the far eastern Pacific including many personal communications, the studies of Chevalier in French Polynesia, the author in the Marshall Is., Maragos (1977), Wells (1954) and many recent collections from the south Pacific, notably the Cook Is. and the original work of the author W from Vanuatu.

It is emphasised that there has been no direct transfer of information from these sources to the present database and that these references have been used as guides only.



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### 3

## *Editorial Notes*

*Note 1* In the interests of brevity in summary statements about complex data, the following qualifying words are given specific meanings: *generally* qualifies a general statement where the author is aware that there are specific exceptions; *recorded* means 'recorded from the original field and laboratory studies of the author and his colleagues' (see above) when used to qualify a stated geographic range or range of characters; *taxonomically significant* means 'significant taxonomic characters used by the author to separate or define taxa' as opposed to what are believed to be non-taxonomically significant characters, such as colour variations or minor regional morphological or ecological characteristics.

In this context it is essential to note that highly polymorphic species may display 'no taxonomically significant' variations throughout their distribution range.

*Note 2* Terminology is consistent with a companion publication in preparation on coral biogeography, which includes a glossary.

*Note 3* The subheading TAXONOMIC REFERENCES specifies the authors primary taxonomic data source for the species under consideration. These are the most geographically relevant, but not necessarily the only, or best, references to taxonomic data for that particular species.

*Note 4* Abundance estimates are, of necessity, very general indications only. Except for very rare or very common species, abundance is extremely difficult to record. It varies greatly from country to country or from one geographic region to another. It also may change enormously between one habitat and the next, and even then it may only be an apparent abundance because large colonies of conspicuous species will appear to be more abundant than small or cryptic yet more numerous colonies of other species. In the present context, a *rare* species is one seldom encountered even if searched for; an *uncommon* species is one that is sometimes found in likely biotopes; a *common* species is one usually found in a likely biotope. This crude classification assumes that the species is recognisable *in situ*. Regional abundance estimates are not believed to be sufficiently well established to be used in numerical analyses.

*Note 5* Unidentified species (as opposed to unidentified specimens), which are usually rare and little studied, are included in this book only if the author believes that they are likely to be valid. These species are given a place name as a temporary identification.

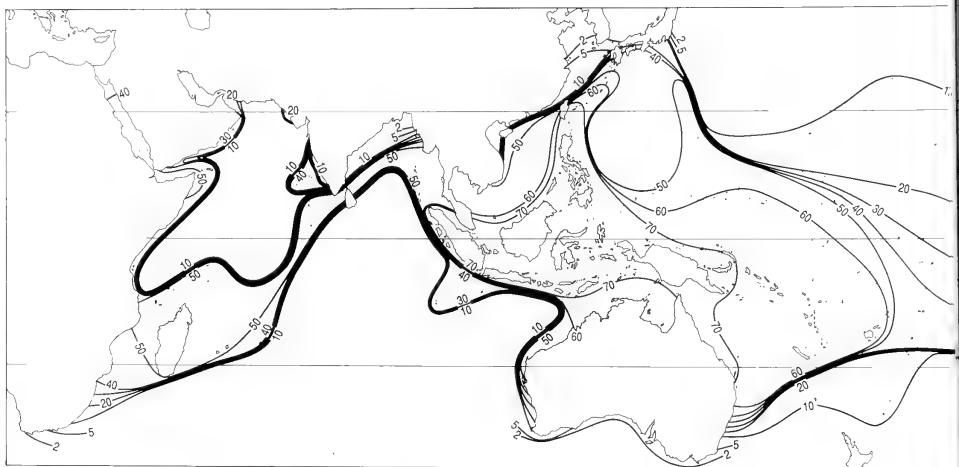
*Note 6* The author intends to make electronic copies of distribution data in this volume available to users.

*Note 7* If there is disagreement between distribution data present in maps, the text, tables, or the abovementioned electronic database, the tables have priority as they contain all final additions and changes.

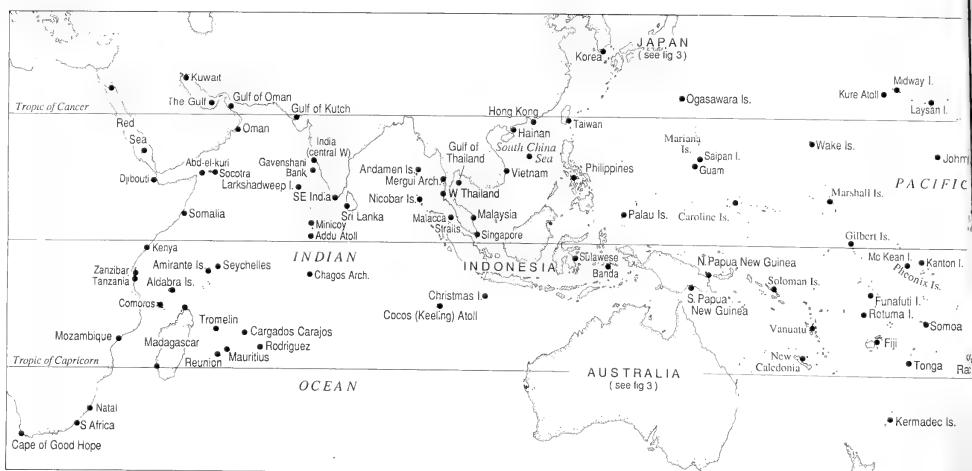
*Note 8* Only species recorded in the central Indo-Pacific by the author and his colleagues (the primary data) are included in this volume. Other species have been reliably recorded from the Central Indo-Pacific and are referred to in the text and in the captions to generic distribution maps. These references may not be complete for species that the author has not studied.

*Note 9* Queries ("?") under the heading *Indo-Pacific longitudinal distribution* refer either to a particular taxonomic uncertainty, an identification uncertainty, or a combination of both. These uncertainties may originate from any of the Data Sources referred to in this volume, or may reflect an absence of adequate information.





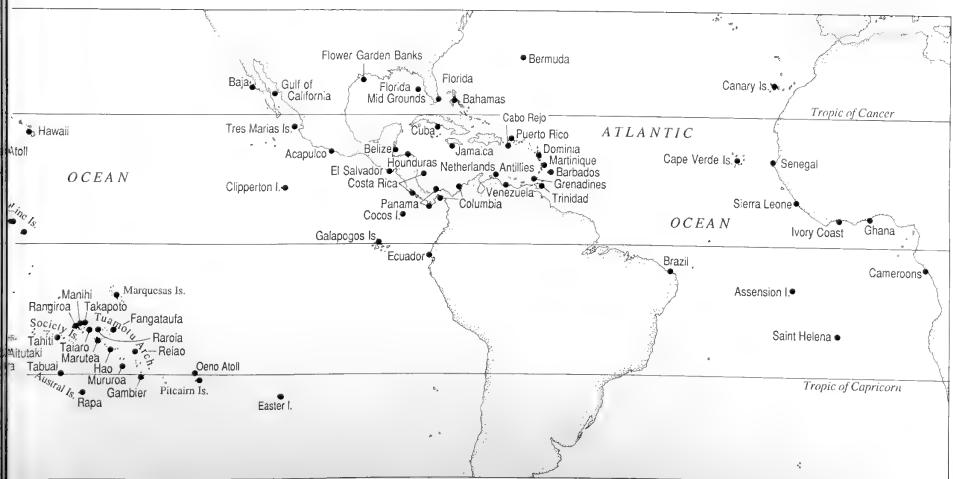
**Figure 2.** Isopangeneric contours of hermatypic corals, computer generated by digitally recording the known ranges program. Contours indicate totals of distribution ranges, not totals of genera actually recorded for a given site or region may have a lower diversity.



**Figure 3.** Location map for records in Figs. 4-111. Dots indicate either specific islands or whole countries. Study s



s of all genera (see maps, p. 346-400) and combining these records using an Idrisi Global Information System country. They therefore indicate maximum genera diversity for large regions; remote or small areas within those



s in the Central Indo-Pacific are given in Figure 1.

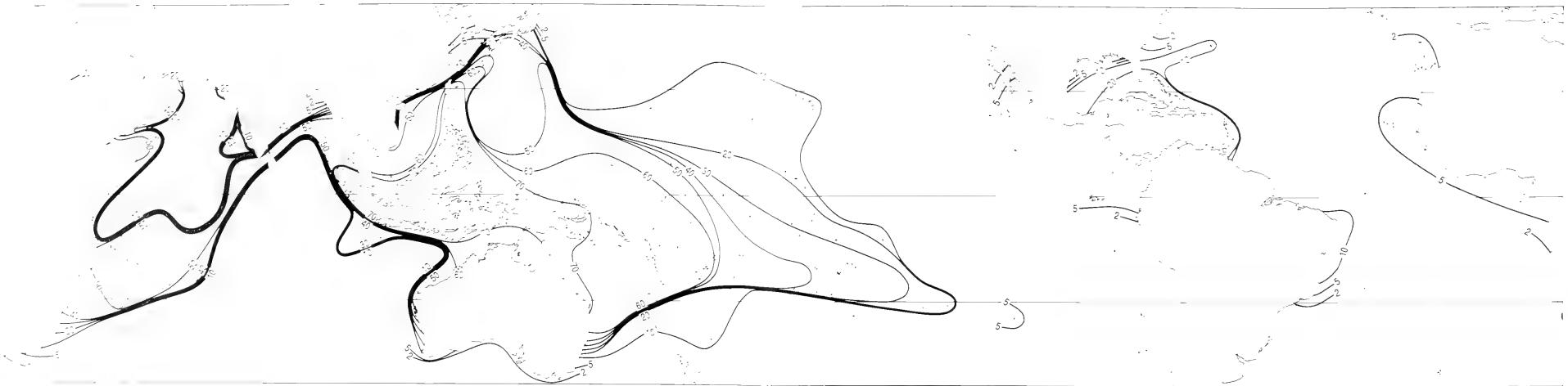


Figure 2. Isopangeneric contours of hermatypic corals, computer generated by digitally recording the known ranges of all genera (see maps, p. 346-400) and combining these records using an Idrisi Global Information System program. Contours indicate totals of distribution ranges, not totals of genera actually recorded for a given site or country. They therefore indicate maximum genera diversity for large regions; remote or small areas within those regions may have a lower diversity.

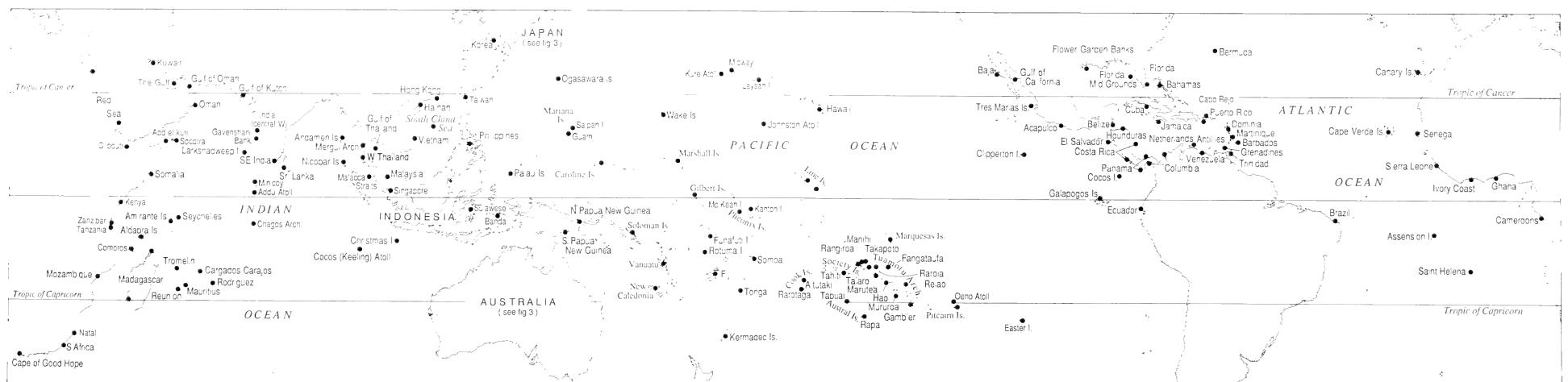


Figure 3. Location map for records in Figs. 4-111. Dots indicate either specific islands or whole countries. Study sites in the Central Indo-Pacific are given in Figure 1.



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4

*Family*  
*Astrocoeniidae*

Koby, 1890

Only one extant genus, *Stylocoeniella*, from the Indo-Pacific, is included in this family. *Stephanocoenia* is a related genus from the Caribbean.

***Genus Stylocoeniella***

Yabe and Sugiyama, 1935

Has three species, all from the Central Indo-Pacific. All three occur at Cocos (Keeling) Atoll indicating the genus has a unusually good dispersal capability.

***Stylocoeniella guentheri***

(Bassett-Smith, 1890)

Relatively common in Ryukyu Is., generally uncommon in Australia (common at the Houtman Abrolhos Is.). Cryptic, usually sub-massive to encrusting, rarely forming large colonies. Mostly in shallow, protected reefal environments. Forms massive colonies only at Elizabeth and Middleton Reef of E Australia, but large colonies are found on NW Shelf reefs of W Australia. Has an unusually wide range of calice structure, depending on environmental conditions. Some coralla from the Ryukyu Is. have very reduced coenosteum spines and the second septal cycle may be well-developed to nearly absent.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** South China Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Madagascar to Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs, Lord Howe I., Sydney.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Hong Kong, Cocos (Keeling) Atoll, Indonesia, Vietnam, Taiwan, N Papua New Guinea, Vanuatu.

### *Stylocoeniella armata*

(Ehrenberg, 1834)

Uncommon, cryptic, mostly encrusting and restricted to protected environments throughout. Much less common than *S. guentheri* throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** Scott Reef, Rowley Shoals.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tosashimizu, Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** Singapore, Malaysia, Cocos (Keeling) Atoll, Indonesia, Taiwan, N Papua New Guinea, S Papua New Guinea.

### *Stylocoeniella cocosensis*

Veron, 1990

Coralla are encrusting and very cryptic. Corallites are irregular in size, shape and orientation and are inclined on the corallum surface. Calices are oval or crescent-shaped, depending on the degree of development of the associated style and degree of inclination on the corallum surface. The coenosteum is covered by spinules similar in size and appearance to those of other *Stylocoeniella*. A rare species known from two widely separated localities, with no taxonomically significant geographic variation recorded.

**TAXONOMIC REFERENCE:** Veron (1990c).

**TYPE LOCALITY:** Cocos (Keeling) Atoll.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Cocos (Keeling) Atoll to Japan.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Yaeyama Is.

**Additional Central Indo-Pacific records:** none.



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5

*Family*  
*Pocilloporidae*

Gray, 1842

Contains three common and widespread genera, *Pocillopora*, *Seriatopora* and *Stylophora* and two uncommon genera, *Palauastrea* and *Madracis*, all from the Indo-Pacific.

*Genus Pocillopora*  
Lamarck, 1816

Contains four very common and widespread Central Indo-Pacific species as well as an uncertain number of uncommon species. The abundance and lack of geographic variation of the common species throughout the tropical Indo-Pacific gives the genus as a whole a uniform appearance. Only in higher latitudes is there marked taxonomically significant geographic variation, both in and among species.

*Pocillopora damicornis*  
(Linnaeus, 1758)

Common throughout the recorded distribution range except at Cocos (Keeling) Atoll. Colonies from tropical reefal locations show little taxonomically significant geographic variation. Colonies from non-reefal high latitude locations are structurally similar but are much more robust than those from reefal locations. Has a very wide range of environment-correlated variation. Colonies from turbid water at the Houtman Abrolhos Is. may be so finely branched that they resemble *Seriatopora caliendrum*. Colonies from Rottnest I. of SW Australia and the Solitary and Lord Howe Is. of SE Australia are almost identical, with thick, tightly compacted branches. Usually pale to dark brown or green, but sometimes pink in the Ryukyu Is. and Tanegashima, dark yellow-grey to brownish-purple in mainland Japan.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** "Oceanus Asiatico".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to central America.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea,

Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is., N coastal N.S.W.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Garden I.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Indonesia, Vietnam, Taiwan, N Papua New Guinea, Vanuatu.

### *Pocillopora verrucosa*

(Ellis and Solander, 1786)

Generally common in tropical locations where colonies have wide environment-correlated, but little taxonomically significant variation. A single corallum collected from Tanegashima, the northern geographic limit, shows no distinctive characters. Coralla throughout the known distribution range have purple-brown pigments in proximal branches.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

#### **DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Hawaii and central America.

#### **Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima, Tosashimizu, Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Indonesia, Vietnam, Taiwan, N Papua New Guinea, Vanuatu.

*Pocillopora meandrina*

Dana, 1846

Common on E Australian and Coral Sea reefs exposed to strong wave action. Uncommon in the Ryukyu Is. May be difficult to distinguish from *P. verrucosa* unless both species occur together. Differences between these species appear constant at all locations where studied.

**TAXONOMIC REFERENCES:** Veron (1986a), Veron and Pichon (1976).

**TYPE LOCALITY:** Hawaii.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Nicobar Is. to central America.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR.

**W Australia:** Ashmore Reef, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Cocos (Keeling) Atoll, Indonesia, Vietnam, Taiwan, N Papua New Guinea, Vanuatu.

*Pocillopora eydouxi*

Edwards and Haime, 1860

Common in tropical Australian locations and throughout the Ryukyu Is. where it may be a dominant species in areas of strong current. The length and compactness of branches varies greatly from one locality to another but the only regional variation observed is that colonies from W Australia and the GBR may be larger and more compact than Ryukyu Is. colonies.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** "Pacific Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to central America.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf reefs, Dampier Arch, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Indonesia, Vietnam, Taiwan, N Papua New Guinea, Vanuatu.

### *Pocillopora woodjonesi*

Vaughan, 1819

Uncommon in most locations and usually difficult to distinguish from *P. eydouxi* except where both species occur together. Colonies identified by the author as *P. woodjonesi* *in situ* at the type locality did not have clearly defined species specific skeletal characters as described by Vaughan (1918) and Wells (1950) and used by the author. The taxonomic status of this species requires further study.

**TAXONOMIC REFERENCES:** Veron (1986a, 1989b), Veron and Pichon (1976).

**TYPE LOCALITY:** Cocos-Keeling Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Cocos-Keeling Is. to ?French Polynesia and ?central America.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, N and Central GBR.

**W Australia:** Cartier Reef, Scott Reef, Dampier Arch, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Malaysia, Cocos (Keeling) Atoll, Indonesia, Vietnam, Taiwan, N Papua New Guinea, S Papua New Guinea.

### *Genus Seriatopora*

Lamarck, 1816

Most *Seriatopora* of the Central Indo-Pacific is a single, very common polymorphic species, *S. hystricula*. More species (perhaps five) occur in the W Indian Ocean and Red Sea than in the Central Indo-Pacific.

## *Seriatopora hystrix*

Dana, 1864

Common throughout the recorded Central Indo-Pacific distribution range. Has a very wide range of ecomorphs throughout this range, with little geographic variability except that the full range of ecomorphs may not be found in all locations. A particular ecomorph with very short pointed branches is common on NW Shelf reefs of W Australia. The gall-crab *Hapalocarcinus marsupialis* occurs with *S. hystrix* in most tropical locations. Colonies are pink or cream throughout the known distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Phoenix Is. and Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** NW Shelf Reefs, Kimberley coast, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

## *Seriatopora caliendum*

Ehrenberg, 1834

Common in the Philippines and the Ningaloo reefs, but generally uncommon or rare elsewhere. May be difficult to distinguish from the much more abundant and variable *S. hystrix* and can also be confused with fine *P. damicornis*.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, N and Central GBR, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** Ashmore Reef, Kimberley coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

## *Genus Stylophora*

Schweigger, 1819

Most *Stylophora* in the Central Indo-Pacific is a single, very polymorphic species, *S. pistillata*. As with *Seriatopora*, there are more species of *Stylophora* in the western Indian Ocean and Red Sea than in the Central Indo-Pacific.

### *Stylophora pistillata*

Esper, 1797

Has one of the greatest ranges of growth form of any coral. Colonies from shallow reef flats exposed to strong wave action have very thick branches, becoming almost submassive. Colonies from sheltered lagoons have long thin branches, especially if the water is turbid and light availability reduced. The former colonies are usually pink or blue in colour, the latter are usually cream. Colonies from intermediate environments have intermediate growth forms and colours. These growth forms clearly integrate and do not overlap (except where adjacent microhabitats are very different). There is also considerable geographic variation in growth form extremes; thick-branched colonies are relatively common in the GBR and Vanuatu and thin-branched colonies are relatively common in high latitude reefs of E and W Australia (Elizabeth and Middleton Reefs, Lord Howe I. and the Houtman Abrolhos Is.) and the Ryukyu Is.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** "East Indian Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea, The Gulf and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.  
**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Stylophora* sp. Japan

Variation within this probable species has been studied only in a series of coralla from one locality in the Ryukyu Is. At one extreme these have all the characters of *Seriatopora*, including corallites arranged in rows. At the other they intergrade with a deep water ecomorph of *Stylophora pistillata*. Specimens from the Philippines are clearly the same species, which requires further study.

**TAXONOMIC REFERENCE:** Veron (1991a).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Ryukyu Is.

**Central Indo-Pacific latitudinal distribution:** not known.

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Okinawa Is.

**Additional Central Indo-Pacific records:** none.

### *Genus Palauastrea*

Yabe and Eguchi, 1941

*Palauastrea* has only one species, *P. ramosa*.

### *Palauastrea ramosa*

Yabe and Sugiyama, 1941

There are no observable differences between coralla from the Houtman Abrolhos Is. and those from the GBR, despite the fact that the species has not been found on any reefs in between. Usually restricted to soft substrates and turbid water in Australia. There is substantial variation in coralla from different habitats in the Philippines and the Ryukyu Is.

where, unlike Australia, this species is common in shallow water, where colonies have short compact branches with proliferous coenosteum styles on branch tips, have corallites that are relatively deep and have two clearly developed (even sub-equal) septal cycles. Coralla from deep water have finer, open branches, form larger colonies, and have relatively superficial corallites with abortive second cycle septa. The former ecomorph has been found on the GBR, but is rare.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** Palau.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Andaman Is. to Vanuatu.

**Indo-Pacific Distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea,

N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

## *Genus Madracis*

Edwards and Haime, 1849

*Madracis* is one of the few genera containing both hermatypic and ahermatypic species. As far as is recorded, *M. kirbyi* is exclusively hermatypic while *M. asanoi* could be both hermatypic and ahermatypic as are other (non-Central Indo-Pacific) species.

### *Madracis kirbyi*

Veron and Pichon, 1976

Well-developed colonies have short club-shaped branches, but most are encrusting. No taxonomically significant geographic variation has been recorded, but as the species is always rare, this has been little studied. Great Barrier Reef and Philippines colonies have the same colours.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** The Gulf and Oman (but not the Red Sea) to E Australia and ?French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: Central GBR.

W Australia: not found.

Philippines - Japan: Philippines.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, N Papua New Guinea.

*Madracis asanoi*

Yabe and Sugiyama, 1941

It is not known if this is exclusively an ahermatypic species or not. The only corallum studied had fine, irregular branches, a growth form more suggestive of an ahermatypic species than the much more robust (hermatypic) *M. kirbyi*. The holotype, from a depth of '100 fathoms', is almost certainly ahermatypic.

**TAXONOMIC REFERENCES:** Veron (1991a); Yabe and Sugiyama (1941).

**TYPE LOCALITY:** Palau.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Japan mainland to Palau.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Kushimoto.

**Additional Central Indo-Pacific records:** Palau.



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6

*Family*  
*Acroporidae*

Verrill, 1902

***Genus Montipora***  
de Blainville, 1830

Many more species of *Montipora*, especially ramose species, occur in the Philippines than either Japan or (especially) Australia. Many of these species are poorly known and the present records are likely to be incomplete.

Most species from NW Shelf reefs are indistinguishable from those of the GBR. Coralla from coastal and southern locations usually exhibit varying degrees of geographic variation. In some cases, especially some species from the Houtman Abrolhos Islands (e.g. *M. mollis*, *M. turtlensis*, *M. spongodes*, *M. angulata* and *M. informis*), the degree of variation makes identification doubtful and suggests the presence of geographic subspecies.

***Montipora monasteriata***  
(Forskål, 1775)

A readily recognised common species that shows no taxonomically significant geographic variation within the recorded Central Indo-Pacific distribution range. Especially common on NW Shelf reefs where it occurs on reef flats to lower slopes.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Vanuatu and  
?Hawaii.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait,  
N and Central GBR, Flinders Reef, Elizabeth and Middleton Reefs.  
**W Australia:** NW Shelf Reefs, Pilbara coast, Dampier Arch.,

Ningaloo Reef Tract, Shark Bay region.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Montipora tuberculosa*

(Lamarck, 1816)

Common; shows no taxonomically significant geographic variation within the recorded Central Indo-Pacific distribution range although the full variation is obscured by unresolved taxonomic problems.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** Scott Reef, Ningaloo Reef Tract, Dampier Arch., Shark Bay region.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan.

### *Montipora lobulata*

Bernard, 1897

The holotype from the British Museum (Natural History) is very similar to a corallum collected from Cocos (Keeling) Atoll; this species requires further study.

**TAXONOMIC REFERENCES:** Veron (1990b).

**TYPE LOCALITY:** Diego Garcia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Diego Garcia to Cocos (Keeling) Atoll.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: Cocos (Keeling) Atoll.

*Montipora hoffmeisteri*

Wells, 1954

Generally common but inconspicuous. Geographic variability is unrecorded but Japanese coralla are similar to those from the GBR and tropical W Australia.

**TAXONOMIC REFERENCES:** Wells (1954), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Marshall Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia to Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, N and Central GBR, Capricorn and Bunker Reefs.

W Australia: NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

Additional Central Indo-Pacific records: Vietnam, Indonesia, Vanuatu.

*Montipora floweri*

Wells, 1954

Common on upper reef slopes of the Coral Sea and Vanuatu, but may be uncommon elsewhere. Very cryptic; geographic variability is unrecorded.

**TAXONOMIC REFERENCES:** Wells (1954), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Marshall Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Red Sea and W Australia to Marshall Is., Vanuatu and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea,

N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Indonesia, N Papua New Guinea, Vanuatu.

*Montipora millepora*

Crossland, 1952

Cryptic, probably common throughout the known distribution range except for W Australia where it is uncommon. Full geographic variability is unrecorded but coralla show no taxonomically significant variation.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?E Africa and W Australia to Coral Sea and  
?French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea,

N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef, Rowley Shoals, Kimberley coast,  
Dampier Arch., Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tosashimizu,  
Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

*Montipora mollis*

Bernard, 1897

One of the most common and variable of all *Montipora* species on the GBR and, especially, SW Australia, where it occurs in most shallow-water habitats and has a very wide range of skeletal variation. Probably uncommon at Cocos (Keeling) Atoll. Within single sites, variation is clearly attributable to environmental conditions, but this is less clear between sites, and there remains a possibility that this is a species complex rather than a single species. Generally uncommon elsewhere in the recorded Central Indo-Pacific.

**TAXONOMIC REFERENCES:** Bernard (1897), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea, E Africa and The Gulf to Hawaii.

**Central Indo-Pacific latitudinal distribution:**

- S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Lord Howe I., Solitary Is., Sydney.
- W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Geographe Bay, Researche Arch.
- Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Cocos (Keeling) Atoll, Vanuatu.

### *Montipora turtlensis*

Veron and Wallace, 1984

Common in turbid waters over most of the recorded tropical Central Indo-Pacific where it appears to have little taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia and W to E Australia.

**Central Indo-Pacific latitudinal distribution:**

- S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I.
- W Australia:** Rowley Shoals, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is., Geographe Bay.
- Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia.

*Montipora effusa*

Dana, 1846

Common in the Philippines. Skeletal characters are similar to those of *M. turgescens*.

TAXONOMIC REFERENCE: Veron (1991a).

TYPE LOCALITY: Tahiti.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** ?Mozambique and Philippines to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tosashimizu, Amakusa Is., Kushimoto.

**Additional Central Indo-Pacific records:** none.

*Montipora peltiformis*

Bernard, 1897

Common in the Philippines and Cocos (Keeling) Atoll, uncommon elsewhere within the recorded Central Indo-Pacific distribution range. Coralla show little taxonomically significant geographic variation.

TAXONOMIC REFERENCES: Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Indonesia.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Madagascar to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** Ashmore Reef, Rowley Shoals, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Port Gregory.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Vietnam, Indonesia, Malaysia, Taiwan, Cocos (Keeling) Atoll, Vanuatu.

*Montipora calcarea*

Bernard, 1897

An ill-defined and little known species.

TAXONOMIC REFERENCE: Veron (1986a).

TYPE LOCALITY: Tonga.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: W Australia to Tonga.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: none.

*Montipora turgescens*

Bernard, 1897

Common throughout the recorded Central Indo-Pacific distribution range where it always has a very wide range of variation. Geographic variations have not been determined, but the recorded range of variation in the Philippines and Japan is similar to that of the GBR.

TAXONOMIC REFERENCES: Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: GBR.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: ?Red Sea and Nicobar Is. to Ellice Is., Samoa and French Polynesia.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs, Lord Howe I.

W Australia: Scott Reef, Rowley Shoals, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., Port Gregory region.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu.

Additional Central Indo-Pacific records: Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Montipora capricornis*

Veron, 1985

Common and conspicuous in higher latitude lagoons of E and W Australia (Capricorn/Bunker Reefs and Houtman Abrolhos Is., respectively) and Vanuatu, but uncommon elsewhere. Coralla from Australia and Vanuatu have differences in skeletal detail which may be taxonomically significant.

**TAXONOMIC REFERENCES:** Veron (1985, 1986a), Veron and Wallace (1984) (as Montipora sp. 2).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Cocos (Keeling) Is. to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Cocos (Keeling) Atoll, Vanuatu.

*Montipora setosa*

Nemenzo, 1976

Generally uncommon in the Philippines, not recorded by the author elsewhere.

**TAXONOMIC REFERENCE:** Nemenzo (1976).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** none.

## *Montipora* sp. E Australia 1

Known from two specimens from Lord Howe I.

TAXONOMIC REFERENCE: Veron and Wallace (1984) (as *Montipora* sp. 3).

**DISTRIBUTION:**

Indo-Pacific longitudinal distribution: Lord Howe I.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: Lord Howe I.

W Australia: not found.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: none.

## *Montipora spongodes*

Bernard, 1897

Usually uncommon. There are substantial differences between coralla from tropical reefs and high latitude Australian locations, indicating the presence of geographic subspecies or a species complex. Septa are better developed in Japanese coralla than in those from the GBR.

TAXONOMIC REFERENCES: Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Not designated.

**DISTRIBUTION:**

Indo-Pacific longitudinal distribution: ?Seychelles and W Thailand to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Central GBR,

Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs,

Lord Howe I., Solitary Is.

W Australia: Ashmore Reef, Kimberley coast, Dampier Arch., Pilbara coast, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Port Dineson.

Philippines - Japan: Philippines, Yaeyama Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

Additional Central Indo-Pacific records: N Papua New Guinea, Thailand, Malaysia, Indonesia, Vanuatu.

*Montipora spumosa*

(Lamarck, 1816)

A distinctive species primarily characterised by a very coarse reticulum. Japanese and Philippines coralla have slightly finer reticulum structures than those from the GBR. Large colonies with prominent reticulum ridges, common on the GBR and NW Shelf reefs of W Australia, have not been seen in Vanuatu, the Philippines or Japan.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Mozambique to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Kushimoto.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Cocos (Keeling) Atoll, Vanuatu.

*Montipora confusa*

Nemenzo, 1967

A common and very distinctive species in the Philippines, not recorded elsewhere.

**TAXONOMIC REFERENCES:** Nemenzo (1967); Veron and Hodgson (1989).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** none.

### *Montipora* sp. E Australia 2

Known only from three coralla collected from very different environments.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984) (as *Montipora* sp. 4).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** GBR to Coral Sea.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, N GBR.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

### *Montipora undata*

Bernard, 1897

Common on upper reef slopes of tropical Australia, generally uncommon elsewhere.  
Coralla show no taxonomically significant variation throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Moluccas.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?E Africa, Moluccas and Indonesia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

### *Montipora mactanensis*

Nemenzo, 1979

Generally common in the Ryukyu Is. and sometimes common in the Philippines where coralla consist of thin plates with fine, radiating reticulum ridges, and show no taxonomically significant variation.

TAXONOMIC REFERENCES: Nemenzo (1979), Veron (1991a).

TYPE LOCALITY: Philippines.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Philippines to Japan.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** none.

*Montipora danae*

(Edwards and Haime, 1851)

Common in Vanuatu, Australia and the Philippines, generally uncommon in Cocos (Keeling) Atoll and the Ryukyu Is. Verrucae may be tightly compacted in colonies exposed to strong wave action, but variation is generally the same throughout the recorded Central Indo-Pacific distribution range. Mostly a uniform pale brown but dark brown at Tanegashima.

TAXONOMIC REFERENCES: Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Fiji.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Red Sea to Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea,

Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Kushimoto.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, Vanuatu.

*Montipora verrucosa*

(Lamarck, 1816)

Generally rare in the Philippines and Japan, common elsewhere. Coralla show no taxonomically significant geographic variation and polyps are often bright blue throughout this range.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Marshall Is. and ?Pitcairn I.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

*Montipora capitata*

Dana, 1846

Common in the Philippines, rare in the Ryukyu Is. where the species occurs as isolated pockets. Coralla from the Philippines and Ryukyu Is. are very similar, while those from Vanuatu tend to have thicker branches.

**TAXONOMIC REFERENCES:** Veron and Hodgson (1989), Veron (1991a).

**TYPE LOCALITY:** Hawaii.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Hawaii.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Vanuatu.

*Montipora incrassata*

(Dana, 1864)

Probably common in Vanuatu, uncommon on the GBR and in Japan where colonies tend to be submassive, without the digitate or irregular upgrowths of GBR colonies.

TAXONOMIC REFERENCES: Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Fiji.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Malaysia and W Australia to Hawaii.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** Scott Reef, Dampier Arch., Pilbara coast, Houtman Abrolhos Is.

**Philippines - Japan:** Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Malaysia, Taiwan, N Papua New Guinea, Vanuatu.

*Montipora foveolata*

(Dana, 1864)

Common on the GBR and in Vanuatu, generally uncommon in the Philippines and Japan where colonies are usually plate-like or submassive and have similar corallites which are relatively small and less easily distinguished from *M. venosa*.

TAXONOMIC REFERENCES: Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Fiji.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** ?E Africa, ?Chagos and W Australia to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** NW Shelf Reefs, Dampier Arch, Ningaloo Reef Tract, Shark Bay region.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Montipora venosa*

(Ehrenberg, 1834)

Uncommon or rare throughout the known distribution range. Coralla from the Philippines and Japan are less easily distinguished from *M. foveolata* than are those from Vanuatu and the GBR.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Lord Howe I.

**W Australia:** Ashmore Reef, Scott Reef, Kimberley coast, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Hong Kong, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Montipora caliculata*

(Dana, 1846)

Uncommon or rare throughout the recorded distribution range except at Vanuatu where it is very common. The reticulum of coralla from the Philippines and Japan is usually finer than that of most GBR coralla; corallites are very similar. Vanuatu colonies have a wider range of growth forms than recorded elsewhere.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia and W Australia to Pitcairn I.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N GBR, Flinders Reef.

**W Australia:** Ashmore Reef, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, Vanuatu.

*Montipora angulata*

(Lamarck, 1816)

Uncommon throughout the known distribution range. Found only on reef flats or subtidal sand flats with *M. digitata* at Cocos (Keeling) Atoll where colonies have thick branches becoming columnar, with conspicuous open corallites. Environment-correlated and geographic variation has not been fully recorded elsewhere, but is wider than this.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** "Eastern Indian Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Gulf of Mannar and W Australia to GBR.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Solitary Is.

**W Australia:** Scott Reef, Ningaloo Reef Tract, Houtman Abrolhos Is., Shark Bay region.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tosashimizu.

**Additional Central Indo-Pacific records:** Vietnam, Malaysia, Thailand, Taiwan, Cocos (Keeling) Atoll.

*Montipora samarensis*

Nemenzo, 1967

May form extensive stands in the Philippines and Yaeyama Is., where colonies may have long, compact branches. Probably rare in the Okinawa Is.; very common on reef flats of Vanuatu.

**TAXONOMIC REFERENCES:** Nemenzo (1976), Veron and Hodgson (1989).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Vanuatu.

### *Montipora altasepta*

Nemenzo, 1967

Forms extensive stands in the Philippines and Yaeyama Is. where, in thick stands of *Montipora*, branches may be long and straight; in more isolated colonies, branches usually become short, irregular and anastomosed. Has not been recorded elsewhere in Japan. Very common on protected reef flats of Vanuatu where branches are of highly variable size and shape.

**TAXONOMIC REFERENCES:** Nemenzo (1967), Veron and Hodgson (1989).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Vanuatu.

### *Montipora* sp. Cocos (Keeling) Atoll

A sub-arborescent species similar to *M. digitata*, primarily distinguished by high reticulum ridges between corallites and flattened branch tips with few corallites. This species has not been recorded elsewhere in the Central Indo-Pacific.

**TAXONOMIC REFERENCE:** Veron (1990b).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Cocos (Keeling) Atoll only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

*Montipora digitata*

(Dana, 1846)

Very common in protected shallow (subtidal) water throughout the recorded distribution range. Has a very wide range of environment-correlated variation. May be a species complex. May occur as two colour morphs in the Philippines and GBR, but is usually cream or brown elsewhere.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa and Arabian Sea to Vanuatu and Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, N and Central GBR.

**W Australia:** Ashmore Reef, Cartier Reef, Scott Reef, Kimberley coast, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is., Geraldton region.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Cocos (Keeling) Atoll, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

*Montipora gaimardi*

Bernard, 1897

Common in the Philippines, uncommon in the Ryukyu Is. Variation has not been fully determined, but is generally like *M. digitata* but with short, contorted branches.

**TAXONOMIC REFERENCES:** Bernard (1897), Veron (1991a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** none.

*Montipora hispida*

(Dana, 1846)

Common on the GBR and Vanuatu, generally uncommon in Japan except at Kushimoto. Variation is similar throughout the tropics. Coralla from mainland locations of Japan are relatively plate-like and lightly calcified; colonies are usually columnar in lagoons of tropical reefs.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Singapore.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to Hawaii.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef, Scott Reef, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

*Montipora informis*

Bernard, 1897

Generally common throughout the recorded Indo-west pacific distribution range, with a similar range of variation. Massive colonies are especially large at Tanegashima and these have an especially wide colour range.

**TAXONOMIC REFERENCES:** Bernard (1897), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Madagascar to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Malaysia, Hong Kong, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, Vanuatu.

*Montipora orientalis*

Nemenzo, 1967

Philippine colonies are flat, glabrous, unifacial or bifacial plates.

**TAXONOMIC REFERENCES:** Nemenzo (1967).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** none.

*Montipora australiensis*

Bernard, 1897

Well-defined and common only on exposed reefs of the Coral Sea; generally rare elsewhere.

**TAXONOMIC REFERENCES:** Bernard (1897), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Houtman Abrolhos Is. Taxonomic note: Although the Houtman Abrolhos Is. is the type locality, this species has not been found by the author anywhere in W Australia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia and W Australia to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, N GBR.

**W Australia:** Houtman Abrolhos Is. (type specimen only).

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia.

*Montipora efflorescens*

Bernard, 1897

Common throughout the known distribution range except Vanuatu where it is uncommon. Colonies from the Philippines and Ryukyu Is. have a similar range of variation, but tend to develop branch-like up-growths more than is usual on the GBR.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Gulf of Oman and Chagos Is. to Samoa and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs, Solitary Is.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Izu.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, Vanuatu.

*Montipora nodosa*

(Dana, 1846)

Common in the Coral Sea, uncommon elsewhere. Coralla show no taxonomically significant geographic variation throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders reef, Elizabeth and Middleton Reefs.

**W Australia:** Scott Reef, Dampier Arch., Houtman Abrolhos Is.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia, Taiwan, Vanuatu.

*Montipora grisea*

Bernard, 1897

Generally common throughout the recorded distribution range except for W Australia where it is common only in the tropics. Shows no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Tonga.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Cocos (Keeling) Is. to Tonga.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is., SW coastal locations S to Port Gregory.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Vietnam, N Papua New Guinea, Cocos (Keeling) Atoll, Taiwan, Vanuatu.

*Montipora hirsuta*

Nemenzo, 1967

Common in the Philippines and Ryukyu Is. where colonies show no taxonomically significant geographic variation and are uniformly cream in colour.

TAXONOMIC REFERENCE: Nemenzo (1967).

TYPE LOCALITY: Philippines to Japan.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Philippines to Japan.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is.

Additional Central Indo-Pacific records: none.

*Montipora stellata*

Bernard, 1897

Sometimes common in the Philippines and common on the GBR and in Japan (S Ryukyu Is. only). Coralla show no taxonomically significant geographic variation throughout the recorded distribution range.

TAXONOMIC REFERENCES: Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: GBR.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: ?Saudi Arabia and W Australia to E Australia.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: S Papua New Guinea, Torres Strait, N and Central GBR.

W Australia: Dampier Arch., Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is.

Additional Central Indo-Pacific records: Vietnam, N Papua New Guinea, Malaysia, Hong Kong, Indonesia, Taiwan.

*Montipora malampaya*

Nemenzo, 1967

Common in the Philippines, generally rare in the Yaeyama Is. Colonies show no taxonomically significant geographic variations.

TAXONOMIC REFERENCE: Nemenzo (1967).

TYPE LOCALITY: Philippines.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Philippines to Japan.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is.

Additional Central Indo-Pacific records: none.

*Montipora cactus*

Bernard, 1897

Generally common in protected shallow biotopes and has a similar range of variation within the recorded distribution range.

TAXONOMIC REFERENCES: Bernard (1897). Veron (1991a).

TYPE LOCALITY: Unrecorded.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Philippines to Japan.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is.

Additional Central Indo-Pacific records: none.

*Montipora* sp. Philippines

Common in the Yaeyama Is. over a wide range of environments, probably less common elsewhere. Colonies consist of thin plates like those of *M. foliosa*, with irregular coenostial ridges and elongate papillae. Corallites are minute and widely spaced.

TAXONOMIC REFERENCE: Veron and Hodgson (1989).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** none.

*Montipora corbettensis*

Veron and Wallace, 1984

Rare and little studied. Colonies are massive or are thick unifacial or bifacial plates.

TAXONOMIC REFERENCES: Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Torres Strait, N and Central GBR.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Malaysia, Indonesia, N Papua New Guinea, Vanuatu.

*Montipora* sp. E Australia 3

Rare and little studied.

TAXONOMIC REFERENCE: Veron and Wallace (1984) (as *Montipora* sp. 5).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** GBR only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** N and Central GBR.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

*Montipora foliosa*

(Pallas, 1766)

Very common on the GBR and tropical W Australia, generally uncommon or rare in the Houtman Abrolhos Is., Vanuatu, the Ryukyu Is. and probably the Philippines. Shows no taxonomically significant geographic variation except at the Philippines where there is a possibility of an additional, very similar species (*M. multipapillosa* Nemenzo) being present.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Mozambique to Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia, N Papua New Guinea, Malaysia, Cocos (Keeling) Atoll, Taiwan, Vanuatu.

*Montipora cebuensis*

Nemenzo, 1976

Generally uncommon throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Nemenzo (1976), Veron and Hodgson (1989).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Vanuatu.

## *Montipora aequituberculata*

Bernard, 1897

Very common in E and W Australia, generally uncommon in Vanuatu, the Philippines and the Ryukyu Is. Seldom forms large plates in the Ryukyu Is. but coralla are very similar throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Bernard (1897), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Torres Strait.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Marquesas Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Port Gregory.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

## *Montipora friabilis*

Bernard, 1897

Uncommon and little studied. The validity of this species is uncertain.

**TAXONOMIC REFERENCES:** Bernard (1897), Veron and Hodgson (1989).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Mozambique to Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima.

**Additional Central Indo-Pacific records:** none.

*Montipora florida*

Nemenzo, 1967

Uncommon and little studied.

TAXONOMIC REFERENCES: Nemenzo (1967), Veron and Hodgson (1989).

TYPE LOCALITY: Philippines.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Philippines only.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines.

Additional Central Indo-Pacific records: none.

*Montipora crassituberculata*

Bernard, 1897

Generally common in Vanuatu and the GBR, generally uncommon in W Australia, rare in the Philippines.

TAXONOMIC REFERENCES: Bernard (1897), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Houtman Abrolhos Is.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Thailand to Pitcairn Is.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

W Australia: Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

Philippines - Japan: Philippines.

Additional Central Indo-Pacific records: Thailand, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

### *Montipora* sp. W Australia 1

A doubtful species known from a single corallum.

TAXONOMIC REFERENCE: Veron and Marsh (1988).

DISTRIBUTION:

Indo-Pacific longitudinal distribution: W Australia only.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: Houtman Abrolhos Is.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: none.

### *Montipora* sp. W Australia 2

A doubtful species known from a single corallum.

TAXONOMIC REFERENCE: Veron and Marsh (1988).

DISTRIBUTION:

Indo-Pacific longitudinal distribution: W Australia only.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: Ningaloo Reef Tract, Houtman Abrolhos Is.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: none.

### *Montipora* sp. W Australia 3

Probably a valid species, but little studied.

TAXONOMIC REFERENCE: Veron and Marsh (1988).

DISTRIBUTION:

Indo-Pacific longitudinal distribution: W Australia only.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: Houtman Abrolhos Is.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: none.

## *Genus Anacropora*

Ridley, 1884

### *Anacropora forbesi*

Ridley, 1884

Generally uncommon throughout the recorded distribution range, but may be a dominant species on soft substrates in deeper water.

Very polymorphic; coralla from Japan are similar to those from Vanuatu in having prominent, conical shaped corallites, but differ in having blunt, rather than pointed branch tips.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Cocos (Keeling) Atoll (not found by Veron, 1990b).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Seychelles and Providence Is. to Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, N Papua New Guinea, Cocos (Keeling) Atoll, Vanuatu.

### *Anacropora puertogalerae*

Nemenzo, 1964

Generally uncommon throughout the recorded distribution range. Colonies from the Ryukyu Is. and other equatorial western Pacific countries are very similar, but differ substantially from those of Vanuatu and the GBR in having finer branches and relatively prominent coenosteum styles. This may amount to a species-level difference.

**TAXONOMIC REFERENCES:** Nemenzo (1964), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR.

**W Australia:** Scott Reef.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Malaysia, Indonesia, N Papua New Guinea, Vanuatu.

*Anacropora spinosa*

Rehberg, 1892

Generally uncommon or rare throughout the recorded distribution range except in restricted pockets.

**TAXONOMIC REFERENCES:** Rehberg (1892).

**TYPE LOCALITY:** Palau.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia to Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Malaysia, Indonesia.

*Anacropora matthaii*

Pillai, 1973

Uncommon or rare but with a similar range of variation throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Indonesia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Central GBR.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Indonesia, Taiwan, N Papua New Guinea, S Papua New Guinea.

### *Anacropora reticulata*

Veron and Wallace, 1984

Colonies in the Philippines and Ryukyu Is. are similar, with robust branches up to 12mm diameter 20mm from the tip. Coralla from the GBR have a relatively fine coenosteum and elaborate coenosteum spinules.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Central GBR.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Indonesia, Vanuatu.

### *Anacropora* sp. Philippines

A single corallum from the Ryukyu Is. has more compact branches than Philippines coralla, otherwise they are very similar.

**TAXONOMIC REFERENCES:** Veron and Hodgson (1989), Veron (1991a).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** none.

## Genus *Acropora*

Oken, 1815

As with most *Montipora* species, there is a greater degree of intra-specific similarity between *Acropora* of the tropical NW Shelf of W Australia and the GBR than there is between tropical and temperate Australian locations. There are also major differences in the relative abundance of species between tropical and temperate regions. Of the 15 groups of *Acropora* defined by Veron and Wallace (1984), the *A. palifera* and *A. echinata* groups are largely restricted to NW Shelf reefs of W Australia where colonies are similar in abundance and appearance to those of the GBR. Three common members of the *A. humilis* group (*A. humilis*, *A. gemmifera* and *A. monticulosa*) are similarly restricted or absent in W Australia.

There are major differences in relative abundance between the W and E Australian coasts in other species: *A. samoensis*, *A. cytherea*, *A. aculeus*, *A. divaricata*, *A. clathrata* and *A. sarmentosa* are all common on most reefs of the GBR, but usually uncommon in W Australian coastal locations. The reverse applies to *A. willisae*, which is much less common on the GBR. *Acropora abrolhosensis*, *A. spicifera* and *A. stoddarti* have not been recorded from the E coast.

Several W Australian *Acropora* species have distinct variants in specific geographic regions and may be sibling species or geographic subspecies. The most notable of these are *A. grandis* from temperate locations, which has distinct morphological characters and colours, and *A. florida* from all W locations which is similarly distinguished from all E coast locations.

There are also morphological, colour and behavioural differences between colonies from temperate locations and their tropical counterparts. Several species of *Acropora* at the Houtman Abrolhos Is. extend their polyps during the day, whereas this is almost never seen in tropical locations. Similarly, many *Acropora* species at the Houtman Abrolhos Is. (except those growing on reef flats exposed to wave action) are relatively lightly calcified. Coralla of all species from coastal temperate locations are substantially morphologically different from coralla of the same species (or in some cases, supposedly the same species) from either the Houtman Abrolhos Is. or from tropical locations. This may be attributable to environmental conditions at the extreme limit of distribution ranges.

One of the most distinctive characters of Cocos (Keeling) Atoll corals is the low diversity and, usually, the low abundance of *Acropora*. The only extensive stands of living *Acropora* are on reef flats. Very extensive stands of dead arborescent species, mainly *A. pulchra* and *A. formosa*, occur in the lagoon and extensive dead tabular colonies, no longer identifiable, occur at North Keeling I.

In Japan, *Acropora* of coral reef locations (Ryukyu Is.) are also markedly different from those of higher latitude non-reef locations. In both regions, *Acropora* is usually the overwhelmingly dominant genus; the differences being (a) in skeletal structure, colour and general appearance *in situ*, (b) in the relative abundance of dominant species and (c), in total species composition. Skeletal structures of mainland *Acropora* (unlike those of the Houtman Abrolhos Is.) are relatively thick, solid and highly calcified. Colour patterns may be the same or be completely different; they are usually darker and more intense. Relative abundance of species is generally uniform between adjacent locations of relatively high diversity (eg. between Shirahama and Kushimoto), but may vary greatly between distant mainland

locations (eg. Amakusa Is. and Kushimoto). In general, for any given species, there is less geographic variation within the Ryukyu Is. than there is within mainland locations. This may be genetic or it may be the result of more critical environmental gradations.

*Acropora palifera*  
(Lamarck, 1815)

The most common of all corals on the E Australian coast, but known only from the NW Shelf reefs of the W coast where it is abundant, especially on upper reef slopes exposed to strong wave action. The range of growth forms on both Australian coasts is similar except that colonies at Lord Howe Is. tend to form incipient axial corallites. Coralla from the reef slope and lagoon of Cocos (Keeling) Atoll are similar and thus display only a small part of the variation of Australian coralla. A dominant species in high energy environments throughout the Philippines and Ryukyu Is., where there is little taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** "Southern Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to the Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** NW Shelf Reefs, Dampier Arch.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Cocos (Keeling) Atoll, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora cuneata*  
(Dana, 1846)

Common on the GBR, uncommon in the Philippines and Ryukyu Is. Corallites of Cocos (Keeling) Atoll, Vanuatu, the Philippines and Ryukyu Is. coralla tend to be smaller than is normal on the GBR. At Tanegashima, encrusting colonies occur in exposed habitats and these have irregular corallites with some tendency to form incipient axial corallites.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to the Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora brueggemannii*

(Brook, 1893)

Like *A. palifera*, this species is found only on NW Shelf reefs of the W Australian coast, where it has the same range of growth forms as on the GBR. Very common on reef flats and upper reef slopes of the Philippines and Ryukyu Is. and may be a dominant species in both exposed and protected habitats. Uncommon in Vanuatu. Has a similar, wide range of variation throughout the recorded Central Indo-Pacific.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Singapore.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Mozambique and Malaysia to Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

*Acropora ocellata*

(Klunzinger, 1879)

Recorded in the Central Indo-Pacific only from Cocos (Keeling) Atoll where it is common.

**TAXONOMIC REFERENCES:** Wells (1950), Veron (1990b).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Cocos (Keeling) Atoll.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Cocos (Keeling) Atoll.

### *Acropora humilis*

(Dana, 1846)

Common in Vanuatu, on the GBR and NW Shelf reefs of W Australia, but has only been recorded at the Dampier Archipelago on the W Australian coast, where it is uncommon. Common in Vanuatu. Restricted to exposed biotopes of the Philippines and Ryukyu Is. where it is generally uncommon to rare.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** NW Shelf Reefs, Dampier Arch.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Acropora gemmifera*

(Brook, 1892)

Common in Vanuatu, on GBR upper reef slopes and on the NW Shelf reefs of W Australia, but has only been recorded at the Dampier Archipelago on the mainland coast, where it is uncommon. Restricted to exposed biotopes of the Philippines and Ryukyu Is. where it is usually much more abundant than *A. humilis*.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** NW Shelf Reefs, Dampier Arch.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora monticulosa*

(Brüggemann, 1897)

Uncommon on the GBR where it may form very large colonies on upper reef slopes. Recorded only from the NW Shelf reefs of W Australia and similarly exposed biotopes in the Philippines and Ryukyu Is., where it is generally uncommon, and Vanuatu where it is common. Has a similar range of variation throughout the recorded Central Indo-Pacific.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Rodriguez.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Aldabra to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR.

**W Australia:** NW Shelf Reefs.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Vietnam, Thailand, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora* sp. E Australia 1

Rare; found only on the GBR where it has a distinctive appearance.

**TAXONOMIC REFERENCE:** Veron and Wallace (1984) (as *Acropora* sp. 1).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** GBR only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: N GBR, Pompey and Swain Reefs.

W Australia: not found.

Philippines - Japan: Not found.

Additional Central Indo-Pacific records: none.

*Acropora samoensis*

(Brook, 1891)

Generally uncommon throughout the recorded Central Indo-Pacific except at Vanuatu where it is common. Coralla from the Philippines and the Ryukyu Is. show no taxonomically significant differences.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Samoa.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Thailand to Samoa and Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

W Australia: NW Shelf Reefs, Dampier Arch., Pilbara coast.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

Additional Central Indo-Pacific records: Thailand, Indonesia, N Papua New Guinea, Vanuatu.

*Acropora digitifera*

(Dana, 1846)

Common on exposed reef flats of tropical W and E Australia, the Ryukyu Is. and Tanegashima, where colonies have the same range of growth forms. Only corymbose colonies have been recorded from the Houtman Abrolhos Is.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Madagascar to Samoa, French Polynesia and ?Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Port Gregory.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Amakusa Is.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora multiacuta*

Nemenzo, 1967

Uncommon or rare throughout the known Indo-west Pacific distribution range. Forms much larger colonies in the Philippines than on the GBR.

**TAXONOMIC REFERENCES:** Wallace (1978), Nemenzo (1976), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Nicobar Is. to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Indonesia.

*Acropora bushyensis*

Veron and Wallace, 1984

A single specimen attributed to this species from W Australia shows no differences from coralla from the southern GBR, the only other recorded locality of the species.

**TAXONOMIC REFERENCES:** Wallace (1978) (as *A. tubicinaria*) (Dana, 1846), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ? W to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Shark Bay region.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** ?Vietnam.

*Acropora verweyi*

Veron and Wallace, 1984

Generally uncommon on the GBR, uncommon in W Australian coastal locations, but common at most NW Shelf reefs and in Vanuatu. Colonies at the Houtman Abrolhos Is. have longer branches than usual for tropical locations. Generally uncommon in the Ryukyu Is., but may be found in both protected and exposed biotopes. Is usually (but not necessarily) a uniform pale brown with yellow axial corallites throughout the recorded distribution range, showing no taxonomically significant geographic variation in growth form or colour.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Coral Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Thailand and W Australia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Solitary Is.

**W Australia:** Ashmore Reef, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Vanuatu.

*Acropora lovelli*

Veron and Wallace, 1984

Rare in Vanuatu and tropical Australia where most identifications are tentative only.  
Common on high latitude Elizabeth and Middleton Reefs and Lord Howe I. of E Australia.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Middleton Reef.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Thailand and W Australia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Central GBR, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** Dampier Arch., Pilbara coast, Houtman Abrolhos Is., Geraldton region.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Thailand, Vanuatu.

*Acropora glauca*

(Brook, 1893)

Rare at tropical Australian locations but common on high latitude reefs of Australia including Lord Howe I. and the Houtman Abrolhos Is. Generally uncommon at Tanegashima, becoming common in Japan mainland locations, where colonies consist of irregularly anastomosing horizontal branches and short upward-curving branchlets forming large corymbose plates. These coralla are similar to those from high latitudes of E Australia, except that radial corallites of the latter tend to have thinner outer lips giving a rasp-like appearance, and axial corallites tend to be smaller.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** W Australia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is.

**W Australia:** Ashmore Reef, Rowley Shoals, Dampier Arch., Houtman Abrolhos Is., SW coastal locations S to Geraldton.

**Philippines - Japan:** Tanegashima, Tosashimizu, Amakusa Is., Kushimoto.

**Additional Central Indo-Pacific records:** Vietnam, Taiwan.

### *Acropora robusta*

(Dana, 1846)

Common in shallow exposed biotopes of the GBR, Vanuatu and the NW Shelf reefs where colonies have the same range of variation. Uncommon in the Ryukyu Is and Cocos (Keeling) Is. where radial corallites are finer than usual in GBR coralla.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa and Red Sea to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Acropora danai*

(Edwards and Haime, 1816)

Found only in tropical locations of W Australia where colonies have the same range of variation found on the GBR, where it is common in shallow exposed biotopes. Uncommon in the Philippines and Ryukyu Is. where colonies generally have finer, more highly fused branches than on the GBR. Coralla from Cocos (Keeling) Atoll have unusually elongate corallites near branch tips.

**TAXONOMIC REFERENCES:** Wallace (1978) (as *A. rotumana* (Gardiner, 1897), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea,

Torres Strait, N and Central GBR, Capricorn and Bunker Reefs,

Flinders Reef, Elizabeth and Middleton Reefs, Solitary Is.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract,  
Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Vanuatu.

*Acropora palmerae*

Wells, 1954

A rare species not satisfactorily separated from *A. danai* or *A. robusta*. Restricted to reef faces exposed to very strong wave action and is mostly encrusting.

**TAXONOMIC REFERENCES:** Wells (1954), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Marshall Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Mascarene Is., ?Thailand and E Australia to Marshall Is. and Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Thailand, Taiwan, Vanuatu.

*Acropora nobilis*

(Dana, 1846)

Common, and has a similar range of variation throughout the recorded Central Indo-Pacific distribution range, forming extensive monospecific stands in a wide range of environments.

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FAMILY ACROPORIDAE

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**TAXONOMIC REFERENCES:** Wallace (1978) (as *Acropora intermedia* (Brook, 1891), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Singapore.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Fiji and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora polystoma*  
(Brook, 1891)

Uncommon throughout the recorded Central Indo-Pacific distribution range. Coralla from Vanuatu show no taxonomically significant differences from Great Barrier Reef coralla.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Mauritius.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Mozambique to Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR.

**W Australia:** Dampier Arch.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Singapore, Indonesia, N Papua New Guinea, Vanuatu.

*Acropora listeri*

(Brook, 1893)

Rare on the GBR, in the Philippines and Yaeyama Is., generally uncommon in Vanuatu and the Kerama Is. of Japan. Coralla are very similar throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Tonga.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Thailand to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Elizabeth and Middleton Reefs.

**W Australia:** Dampier Arch.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, N Papua New Guinea, Vanuatu.

*Acropora grandis*

(Brook, 1892)

Seldom common on the GBR, but found in a wide variety of biotopes. Colonies tentatively attributed to this species are very common on reef flats and upper reef slopes of the Houtman Abrolhos Is. where most are a uniform pale brown or bright blue. These do not form the large, thick-branched colonies that are common in similar environments on the GBR. Coralla from both Australian coasts have similar, lightly calcified corallites. Generally common in the Philippines and the Ryukyu Is., uncommon in Vanuatu where colonies show no taxonomically significant differences from those of the GBR.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Red Sea and W Australia to Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is., SW coastal locations S to Port Gregory.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Acropora formosa*

(Dana, 1846)

Very common throughout the recorded Central Indo-Pacific distribution range, except at Cocos (Keeling) Atoll where it is uncommon and has a similar range of variation throughout this range.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Fiji and Sulu Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Madagascar to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Acropora teres*

(Verrill, 1866)

This is an arborescent species, primarily characterised by very straight branches and immersed radial corallites. It has been recorded from the Philippines (Ross and Hodgson, 1982 and Veron and Hodgson, 1989) but not the Ryukyu Is. (the type locality) by the author.

**TAXONOMIC REFERENCES:** Wells (1954).

**TYPE LOCALITY:** Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ? Philippines to Samoa.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines; Okinawa Is.

**Additional Central Indo-Pacific records:** none.

*Acropora* sp. Cocos (Keeling) Atoll 1

Sometimes common at Cocos (Keeling) Atoll, unrecorded elsewhere.

**TAXONOMIC REFERENCES:** Vaughan (1918) gives a very extensive account of this species (as *A. pharaonis*) which incorporates descriptions of earlier authors.

**DISTRIBUTION:** Unrecorded.

**Indo-Pacific longitudinal distribution:** Cocos (Keeling) Atoll only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: not found.

**Additional Central Indo-Pacific records:** none.

*Acropora abrolhosensis*

Veron, 1985

Uncommon at all recorded locations except the Houtman Abrolhos Is. where it is common and Vanuatu where it is rare. Coralla from all W Australian locations have similar skeletal structures, and polyps are usually extended day and night. Generally uncommon in the Ryukyu Is. where it forms extensive thickets with straight branches similar to those of Australia.

**TAXONOMIC REFERENCES:** Veron (1985, 1986a).

**TYPE LOCALITY:** Houtman Abrolhos Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract,  
Houtman Abrolhos Is.

Philippines - Japan: Yaeyama Is., Okinawa Is.

Additional Central Indo-Pacific records: Vanuatu.

*Acropora acuminata*

(Verrill, 1864)

Uncommon on the GBR, in Vanuatu, the Philippines and in the Ryukyu Is. except on high diversity reef flats of the Kerama Is. where it forms large, circular, pale to dark brown, corymbose plates. Branches are finer and closer, and corallites smaller, than in most coralla from the GBR, but are similar in these respects to coralla from Thailand. Skeletons of Japanese coralla bleach white, whereas those of all other Central Indo-Pacific countries (where studied) retain dark pigments after bleaching. The present records are doubtful; the species warrants further study.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Gilbert Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Thailand to Vanuatu and ?Gilbert and Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

W Australia: Ashmore Reef, Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is.

Additional Central Indo-Pacific records: Thailand, Vietnam, Indonesia, Taiwan, Vanuatu.

*Acropora valenciennesi*

(Edwards and Haime, 1860)

Common only in tropical Australian locations where colonies show no taxonomically significant geographic variation. Coralla from the Houtman Abrolhos Is. are more arborescent and are only tentatively attributed to this species. Rare in the Philippines, generally uncommon and restricted to exposed reef slopes of Vanuatu and the Ryukyu Is.

**TAXONOMIC REFERENCES:** Wallace (1978) (as *A. splendida* Nemenzo, 1967), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: GBR.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Red Sea to Samoa.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

W Australia: Ashmore Reef, Scott Reef, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is.

Additional Central Indo-Pacific records: Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora pruinosa*

Brook, 1893

A distinctive species restricted to the environmental extremes of *Acropora* distribution. At the Amakusa Is. it is the dominant species at one small depauperate site where it has two colour morphs, greenish and brown.

TAXONOMIC REFERENCES: Veron (1991a).

TYPE LOCALITY: Straits of Korea and 'China'.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: China to mainland Japan.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Tosashimizu, Amakusa Is., Izu.

Additional Central Indo-Pacific records: Hong Kong.

*Acropora parilis*

(Quelch, 1816)

Common in some lagoon biotopes of Vanuatu, the Philippines, and the S Ryukyu Is., where colonies are very similar and may form extensive stands.

TAXONOMIC REFERENCE: Veron and Hodgson (1989).

TYPE LOCALITY: Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is.

Additional Central Indo-Pacific records: Vanuatu.

*Acropora exquisita*

Nemenzo, 1971

Common in the Philippines, uncommon in Vanuatu, Cocos (Keeling) Atoll, the Philippines and Ryukyu Is. Colonies have a similar appearance throughout the recorded distribution range. They display very wide environment-correlated, and possibly age-correlated, variation, analogous to that of *A. pulchra*.

**TAXONOMIC REFERENCE:** Nemenzo (1971).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Cocos (Keeling) Is. to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: Scott Reef, Rowley Shoals.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is.

Additional Central Indo-Pacific records: Cocos (Keeling) Atoll, Vanuatu.

*Acropora akajimensis*

Veron, 1990

Probably uncommon or rare in the Philippines (not recorded by Nemenzo or Veron and Hodgson, 1989), but common on high diversity reef flats of the Kerama Is., Japan.

**TAXONOMIC REFERENCE:** Veron (1990c, 1991a).

**TYPE LOCALITY:** Ryukyu Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Japan.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is.

Additional Central Indo-Pacific records: none.

*Acropora microphthalma*

(Verrill, 1869)

Probably uncommon throughout most of the recorded Central Indo-Pacific distribution range. Colonies of NW Shelf reefs of W Australia are mostly indistinguishable from those from the GBR, but several coralla are referred to this species with doubt. A single corallum from the Houtman Abrolhos Is. and some from northern coastal locations may represent a separate species or geographic subspecies. Common, and may form extensive stands in the Philippines and Ryukyu Is. Colonies from all locations are usually pale grey in colour.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Ryukyu Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR.

W Australia: NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Cocos (Keeling) Atoll, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora copiosa*

Nemenzo, 1967

An ill-defined species common in Vanuatu, uncommon in the Philippines and rare in the Ryukyu Is. Growth forms range from compact thickets to sprawling, horizontal branches.

**TAXONOMIC REFERENCE:** Nemenzo (1967).

**TYPE LOCALITY:** Philippines to Vanuatu.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Tanegashima.

Additional Central Indo-Pacific records: Vanuatu.

*Acropora* sp. Japan 1

This is an undescribed species forming small compact clumps with proliferous, tapering branches and very small axial corallites. The species has the general appearance of a diminutive *A. microphthalma*.

**TAXONOMIC REFERENCE:** Veron (1991a).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Japan only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Yaeyama Is.

Additional Central Indo-Pacific records: none.

*Acropora kirstyae*

Veron and Wallace, 1984

Generally uncommon on the GBR, rare in the Philippines, but may form extensive stands in isolated pockets of Yaeyama Is.; rare elsewhere in Japan. Corallites of Japanese and GBR coralla have less flared lips than those from the Philippines.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Singapore and the Philippines to the Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Central GBR.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Singapore, Indonesia, S Papua New Guinea.

### *Acropora* sp. E Australia 2

Rare and little studied.

**TAXONOMIC REFERENCE:** Veron and Wallace (1984) (as *Acropora* sp. 2).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** GBR only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Swain and Pompey Reefs.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

### *Acropora sekiseiensis*

Veron, 1990

Common over a wide range of environments of Sekisei Lagoon, Yaeyama Is., including reef flats and lagoons.

**TAXONOMIC REFERENCES:** Veron (1990c, 1991a).

**TYPE LOCALITY:** Ryukyu Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Ryukyu Is. only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** none.

### *Acropora* sp. W Australia

A distinctive species with close affinities with *A. horrida*, apparently endemic to the Houtman Abrolhos Is.

TAXONOMIC REFERENCE: Veron and Marsh (1988) (as *Acropora* sp. 1).

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** W Australia only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** Houtman Abrolhos Is.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

### *Acropora horrida*

(Dana, 1846)

Common in the Philippines, GBR and tropical W Australia where colonies are pale or dark blue, rarely brown. Forms a distinct geographic subspecies at the Houtman Abrolhos Is. where colonies are mostly brown, form stands up to 2 m diameter, and have relatively small corallites. Polyps are usually extended day and night in all Australian locations. Uncommon in the Ryukyu Is. where colonies form compact bushes or have a sprawling growth form and also have relatively small corallites. There remains a possibility that the latter are a distinct species.

TAXONOMIC REFERENCES: Wallace (1978), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Fiji.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to the Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, N Papua New Guinea, Vietnam, Indonesia.

*Acropora tortuosa*

(Dana, 1846)

Very rare on the GBR and tropical W Australia, common on high latitude reefs of E Australia but uncommon on the Houtman Abrolhos Is.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: N and Central GBR, Elizabeth and Middleton Reefs.

W Australia: Dampier Arch., Houtman Abrolhos Is.

Philippines - Japan: not found.

**Additional Central Indo-Pacific records:** none.

*Acropora vaughani*

Wells, 1954

Uncommon on the GBR except in some turbid biotopes, common in the Philippines and in the Kerama Is., but rare elsewhere in Japan. Coralla are similar throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Marshall Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Saudi Arabia and W Australia to Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: Coral Sea, Torres Strait, N and Central GBR.

W Australia: Scott Reef, Rowley Shoals, Ningaloo Reef Tract, Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, N Papua New Guinea, Vietnam, Indonesia.

*Acropora austera*

(Dana, 1846)

Found in a wide range of environments throughout the recorded Central Indo-Pacific distribution range and is sometimes common in areas of high diversity. Coralla are very similar throughout this range and colonies usually have distinctive yellow axial corallites.

TAXONOMIC REFERENCES: Wallace (1978), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Saudi Arabia and Madagascar to the Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora aspera*

(Dana, 1846)

Generally common in a wide range of biotopes throughout the recorded Central Indo-Pacific distribution range but uncommon at Cocos (Keeling) Atoll. Colonies from reef flats of Australia and the Philippines are characteristically corymbose. Those from mainland locations of Japan are highly anastomosed, becoming plate-like or forming solid plates. These form a distinct geographic sub-species of doubtful taxonomic affinity; they are usually darkly coloured.

TAXONOMIC REFERENCES: Wallace (1978), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Chagos to Fiji and ?Samoa.

**Central Indo-Pacific latitudinal distribution:** Cocos-Keeling Is. to Fiji.

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** Ashmore Reef, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tosashimizu, Amakusa Is., Shirahama, Kushimoto.

**Additional Central Indo-Pacific records:** Thailand, Cocos (Keeling) Atoll, Malaysia, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora pulchra*

(Brook, 1891)

Generally uncommon on the GBR and usually restricted to shallow back-reef margins. Commonly forms extensive monospecific stands in shallow lagoons and on upper reef slopes of Vanuatu, the Houtman Abrolhos Is. and Cocos (Keeling) Atoll. Also common on reef flats, where colonies become sub-corymbose. Coralla from the Houtman (Abrolhos) Is. have relatively fine branches and lightly calcified, small corallites. May form very extensive stands in shallow, protected environments of Sekisei Lagoon, Yaeyama Is., but is generally uncommon in Japan. Has a similar wide range of variation and is usually blue or cream throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Cocos-Keeling Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Mozambique to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora millepora*

(Ehrenberg, 1834)

Common on the GBR, sometimes common in the Yaeyama Is. but generally uncommon in Japan. May be the same distinctive salmon-pink colour in Japan, the Philippines and the GBR, but has a wide range of other colours. Shows very little variation throughout the recorded Central Indo-Pacific distribution range.

TAXONOMIC REFERENCES: Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: "Indian Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Sri Lanka and Malaysia to Marshall Is and Tonga.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Solitary Is.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Jurien Bay.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora tenuis*

(Dana, 1846)

Common on the GBR, in Vanuatu, and the Philippines, uncommon in the Ryukyu Is. except in some reef flats. Philippines and Ryukyu Is. colonies have a similar appearance *in situ*, with a sprawling growth form and large, distinctive corallites with wide flaring lips. Australian colonies are generally less distinctive. Usually the same cream colour throughout the recorded Central Indo-Pacific distribution range, but may be other colours. Polyps are usually partly extended during the day at the Houtman Abrolhos Is.

TAXONOMIC REFERENCES: Wallace (1978), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to Vanuatu and the Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora selago*

(Studer, 1878)

Common in tropical reefs throughout the recorded Central Indo-Pacific distribution range. It is not known if the full range of variation determined on the GBR also occurs in Japan, where collected coralla have relatively fine branches and corallites, the latter being more appressed than usual on GBR coralla.

**TAXONOMIC REFERENCES:** Wallace (1978) (as *A. delicatula*), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** New Ireland.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** SE India and Sri Lanka to Johnston Atoll and the Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, SW coastal locations S to Port Gregory.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora* sp. Japan 2

A single corallum from Tanegashima appears to be a distinct species. It is a corymbose plate with an open branching pattern and is primarily characterised by flaring radial corallites (similar to, but smaller than, those of *A. selago*) and a very coarse lace-like skeleton.

**TAXONOMIC REFERENCES:** Veron (1991a).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Japan only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Tanegashima.

Additional Central Indo-Pacific records: none.

*Acropora donei*

Veron and Wallace, 1984

Uncommon, but forms large, conspicuous colonies throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Thailand to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

W Australia: NW Shelf Reefs, Kimberley coast, Houtman Abrolhos Is.

Philippines - Japan: Philippines.

Additional Central Indo-Pacific records: Thailand, Vietnam, Indonesia, Vanuatu.

*Acropora dendrum*

(Bassett-Smith, 1890)

Generally uncommon throughout the recorded Central Indo-Pacific distribution range. Readily confused with *A. validia* in mainland Japan where it forms corymbose plates with tapering branchlets and thick-lipped immersed corallites. This identification of mainland coralla, which form a distinct geographic subspecies, is tentative only.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** South China Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Thailand to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Pilbara coast, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Thailand, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora yongei*

Veron and Wallace, 1984

Common in high diversity areas of upper reef slopes and flats of the Ryukyu Is., especially the Kerama Is. Uncommon in Vanuatu.

**TAXONOMIC REFERENCES:** Wallace (1978) (as *A. hainwei*), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia to Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe Is., Solitary Is.

**W Australia:** NW Shelf Reefs, Dampier Arch., Houtman Abrolhos Is., Port Gregory region, Rottnest I.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

*Acropora cytherea*

(Dana, 1846)

Forms extensive stands in shallow water on the GBR, the Philippines, Vanuatu and some locations of the Ryukyu Is. Has a similar range of variation throughout the recorded Central Indo-Pacific distribution range, but may have wide environment-correlated variation.

TAXONOMIC REFERENCES: Wallace (1978), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Tahiti.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to French Polynesia and Hawaii.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Solitary Is.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora microclados*

(Ehrenberg, 1834)

Common in the Philippines, the Yaeyama Is., and on exposed upper reef slopes of the GBR and Vanuatu; uncommon elsewhere. Colonies are relatively finely branched in Vanuatu. They are pink on the GBR, usually grey in Vanuatu, cream or yellow in the Philippines, grey or brown in the Ryukyu Is.

TAXONOMIC REFERENCES: Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Unrecorded.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Indonesia to Vanuatu and ? Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Flinders Reef.

**W Australia:** Rowley Shoals, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora tenella*

(Brook, 1892)

Rare throughout the known Central Indo-Pacific distribution range.

TAXONOMIC REFERENCES: Brook (1892), Veron and Hodgson (1989).

TYPE LOCALITY: Macclesfield Bank, S China Sea.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** South China Sea to Japan.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is.

Additional Central Indo-Pacific records: none.

*Acropora magnifica*

Nemenzo, 1971

Uncommon, generally restricted to vertical substrates.

TAXONOMIC REFERENCES: Nemenzo (1971), Veron and Hodgson (1989).

TYPE LOCALITY: Philippines.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Philippines only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines.

Additional Central Indo-Pacific records: none.

*Acropora paniculata*

Verrill, 1902

Generally rare or uncommon throughout the recorded Central Indo-Pacific distribution range. Sometimes common in Vanuatu, forming large, thick, plate-like colonies with polyps extended during the day. Has a similar range of variation in the Philippines, Japan and the GBR. Coralla from Cocos (Keeling) Atoll may be a separate species or a

geographic subspecies with wide variation in the degree of branch fusion and a lack of the elongate radial corallites which characterise most eastern Australian coralla.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Probably Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Cocos (Keeling) Atoll to Fiji and ?Hawaii.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR.

**W Australia:** Ashmore Reef.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Cocos (Keeling) Atoll, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

*Acropora hyacinthus*

(Dana, 1846)

Common throughout the recorded Central Indo-Pacific distribution range except at Cocos (Keeling) Atoll, where it is rare. Occurs S to the Houtman Abrolhos Is. on the W Australian coast, where colonies are indistinguishable from those of the GBR, but are unusual in having polyps extended day and night. A record from Green Head is the southern- most W Australian mainland record for *Acropora*. Usually common on shallow upper reef slopes of the Ryukyu Is., especially the Yaeyama Is., and is the overwhelmingly dominant species of shallow-water coral communities of Tanegashima. Has a similar range of variation in Japan, the Philippines and the GBR, showing little taxonomically significant geographic variation except that, in Japan mainland locations, branchlets tend to be thick and radial corallites mostly immersed.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Mascarene Arch. to Hawaii and Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is., N New South Wales.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Green Head.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Acropora tanegashimensis*

Veron, 1990

Colonies are flat corymbose plates similar to those of *A. hyacinthus*. Branches are uniform in size, 9-11mm diameter and branchlets are short, terete, and also uniform. Has only been recorded from Tanegashima, where it is distinctive, but uncommon.

**TAXONOMIC REFERENCES:** Veron (1990c, 1991a).

**TYPE LOCALITY:** Tanegashima, Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Japan only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Tanegashima.

**Additional Central Indo-Pacific records:** none.

### *Acropora spicifera*

(Dana, 1846)

Rare in the Philippines. The most abundant reef flat and upper slope species of the Houtman Abrolhos Is. where colonies >3 m diameter are common. These, like *A. hyacinthus*, have polyps extended day and night.

**TAXONOMIC REFERENCES:** Veron (1986a).

**TYPE LOCALITY:** Singapore and Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Singapore to W Australia and Samoa.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

Philippines - Japan: Philippines.

Additional Central Indo-Pacific records: none.

*Acropora anthocercis*

(Brook, 1893)

Rare in the Philippines, uncommon in Vanuatu, sometimes common on exposed upper reef slopes of the GBR and Ryukyu Is. Colonies at Tanegashima have almost solid plate-like bases. Otherwise, there is little taxonomically significant geographic variation and colonies are the same (pinkish) colour throughout the recorded Central Indo-Pacific distribution range.

TAXONOMIC REFERENCES: Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: GBR.

**DISTRIBUTION:**

Indo-Pacific longitudinal distribution: Mozambique and ? Red Sea to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

W Australia: Ashmore Reef, Scott Reef, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

Additional Central Indo-Pacific records: Vietnam, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora tumida*

Verrill, 1866

Common around Shirahama and Kushimoto of mainland Japan. Colonies have irregular to submassive bases and irregular, digitate branches. Radial corallites are aligned along branches, are appressed, with thick lips and wide calices. Recorded elsewhere only from the South China Sea (Brook, 1893) (a doubtful record) and Hong Kong (Verrill, 1866 (type locality) and Veron 1980).

TAXONOMIC REFERENCES: Veron (1991a).

TYPE LOCALITY: Hong Kong.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: South China Sea to Japan.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Tosashimizu, Kushimoto, Shirahama.

Additional Central Indo-Pacific records: Hong Kong.

*Acropora latistella*

(Brook, 1892)

Rare at Cocos (Keeling) Atoll, common on upper reef slopes throughout the rest of the recorded Central Indo-Pacific distribution range. Forms extensive plates in W Australia only at the Houtman Abrolhos Is. The range of variation in the Ryukyu Is. is similar to that in the Philippines and Australia.

TAXONOMIC REFERENCES: Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: GBR.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Cocos (Keeling) Atoll to Pitcairn Is.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs,

Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is.

W Australia: NW Shelf Reefs, Kimberley coast, Dampier Arch.,

Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Amakusa Is.

Additional Central Indo-Pacific records: Thailand, Cocos (Keeling) Atoll, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

## *Acropora subulata*

(Dana, 1846)

Rare at Cocos (Keeling) Atoll, common in tropical Australian reefs, Vanuatu and the Ryukyu Is., becoming uncommon at Tanegashima. Has very little variation within the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Cocos (Keeling) Atoll to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Flinders Reef.

**W Australia:** NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is., SW coastal locations S to Port Gregory.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Cocos (Keeling) Atoll, Malaysia, N Papua New Guinea, Vanuatu.

## *Acropora nana*

(Studer, 1878)

Common in Vanuatu, uncommon on the GBR, rare in W Australia except for some NW Shelf reefs. Always restricted to exposed upper reef slopes. Has a similar range of variation throughout the recorded Central Indo-Pacific distribution range. Commonly bright blue at the Ryukyu Is., brown, blue-grey or cream at Tanegashima.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Cocos-Keeling Is. to Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Cocos (Keeling) Atoll, Indonesia, Taiwan, Vanuatu.

*Acropora aculeus*

(Dana, 1846)

Generally uncommon throughout the recorded Central Indo-Pacific distribution range except for the GBR where it is common on upper reef slopes and in clear-water lagoons. Corallites of Ryukyu I. coralla are larger than usual for GBR coralla. Colonies on the GBR and the Philippines are usually yellow, those of coastal W Australian locations and the Houtman Abrolhos Is. are pale brown.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?E Africa and Sri Lanka to Marshall Is. and Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Rowley Shoals, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is., SW coastal locations S to Port Gregory.

**Philippines - Japan:** Philippines, Yaeyama Is., ? Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

*Acropora azurea*

Veron and Wallace, 1984

Very rare; recorded only on very exposed upper reef slopes of the central GBR, where it is always a uniform sky blue.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** GBR only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: Central GBR.

W Australia: not found.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: ? Taiwan.

*Acropora cerealis*

(Dana, 1846)

Common in tropical Australian locations and the Philippines, rare at the Houtman Abrolhos Is., uncommon in Japan. Shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

TAXONOMIC REFERENCES: Wallace (1978), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Sulu Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Seychelles to the Marshall Is., Tonga and Johnston Atoll.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

W Australia: NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is.

Additional Central Indo-Pacific records: Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora nasuta*

(Dana, 1846)

Common, and with a similar range of variation, throughout the recorded Central Indo-Pacific distribution range.

TAXONOMIC REFERENCES: Wallace (1978), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Tahiti.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Indonesia, Malaysia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora* sp. E Australia 3

Recorded from a single corallum from the central GBR.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984) (as *Acropora* sp. 3).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** GBR only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Central GBR.

**W Australia:** not found.

**Philippines - Japan:** not found.

*Acropora* sp. E Australia 4

Rare; recorded only from the S GBR where little is known on the range of variation.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984) (as *Acropora* sp. 4).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** GBR only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Capricorn and Bunker Reefs.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

*Acropora valida*

(Dana, 1846)

Probably the most widespread of all *Acropora* species, especially common in high latitudes. Generally common on upper reef slopes throughout the recorded Central Indo-Pacific distribution range. May be a dominant *Acropora* of mainland Japan where it forms a distinct geographic subspecies primarily characterised by radial corallites with thick rounded lips. Ryukyu Is. coralla have a similar range of variation as GBR and Philippines coralla and the species has the same distinctive two colour morphs throughout this range.

**TAXONOMIC REFERENCES:** Wallace (1978) (as *A. variabilis* (Klunzinger, 1879), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Columbia. Probably the most widespread of any *Acropora* species.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Solitary Is.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora* sp. Cocos (Keeling) Atoll 2

Colonies are irregularly arborescent. Corallites are very irregular, some being *valida*-like and strongly oppressed. This species is little-known.

**TAXONOMIC REFERENCES:** Veron (1990b).

**DISTRIBUTION:** Cocos (Keeling) Atoll.

**Indo-Pacific longitudinal distribution:** Cocos (Keeling) Atoll only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: none.

*Acropora secale*

(Studer, 1878)

Generally common in the GBR and Vanuatu, sometimes common on exposed upper reef slopes of the Ryukyu Is. Has a similar range of variation and similar colours throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Wallace (1978) (as *A. diversa* (Brook, 1891)), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Sri Lanka.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to the Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is.

Additional Central Indo-Pacific records: Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora lutkeni*

Crossland, 1952

Uncommon in Vanuatu and on the GBR where it is restricted to upper reef slopes exposed to strong currents.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Thailand and the GBR to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

W Australia: not found.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: Thailand, Singapore, Vietnam, N Papua New Guinea, Vanuatu.

*Acropora clathrata*

(Brook, 1891)

Common on upper reef slopes, back reef margins and fringing reefs of Vanuatu and the GBR, uncommon in the Yaeyama Is., common in some other regions of the Ryukyu Is. Has a similar range of variation throughout the recorded Central Indo-Pacific distribution range.

TAXONOMIC REFERENCES: Wallace (1978), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Mauritius.

**DISTRIBUTION:**

Indo-Pacific longitudinal distribution: Red Sea, The Gulf and Madagascar to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

W Australia: NW Shelf Reefs, Kimberley coast, Dampier Arch., Ningaloo Reef Tract

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is.

Additional Central Indo-Pacific records: Thailand, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora divaricata*

(Dana, 1846)

Common on the GBR, Vanuatu and NW Shelf reefs of W Australia. Records from W Australian coastal locations are tentative only. Has a very wide range of variation on the GBR. Uncommon in the Philippines and Ryukyu Is. where environment-correlated variation has not been studied.

TAXONOMIC REFERENCES: Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?E Africa and Seychelles to Vanuatu and ?Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** Ashmore Reef, Scott Reef, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Acropora* sp. Philippines

A rare, undescribed species that has been reported from Thailand and the Philippines, but has not been found by the author. It is close to *A. divaricata* but has bulbous radial corallites.

**TAXONOMIC REFERENCE:** Veron and Hodgson (1989) (as *Acropora* sp. 1).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Thailand.

*Acropora schmitti*

Wells, 1950

Not found by Veron (1990b) at Cocos (Keeling) Atoll, but was recorded there by Wells (1950).

**TAXONOMIC REFERENCES:** Wells (1950).

**TYPE LOCALITY:** Cocos (Keeling) Atoll.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Cocos (Keeling) Atoll to ?Samoa.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: not found.

**Additional Central Indo-Pacific records:** Thailand.

*Acropora rambleri*

Bassett-Smith, 1890

Uncommon or rare in Vanuatu and the Philippines.

**TAXONOMIC REFERENCES:** Veron and Hodgson (1989).

**TYPE LOCALITY:** South China Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Mozambique and the Philippines to

?French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines.

**Additional Central Indo-Pacific records:** Vanuatu.

*Acropora solitaryensis*

Veron and Wallace, 1984

Common in Vanuatu and S of the GBR on the E Australian coast and at the Houtman Abrolhos Is. and Dampier Archipelago on the W coast. At both these W coast locations, colonies may consist of whorls of solid plates with almost no development of branchlets. Most colonies are indistinguishable from those of Lord Howe and the Solitary Islands of E Australia. At Vanuatu, colonies show less fusion of branches than at most tropical Australian reefs. Uncommon in the Ryukyu Is., where colonies are found on upper reef slopes, becoming common at Tanegashima and the Amakusa Is. These are very similar in colour, structure, variation and abundance to those of Australia. In all cases, this species shows a wide range of growth form variation; it is relatively rare in tropical locations and becomes abundant at higher latitudes.

TAXONOMIC REFERENCES: Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Solitary Is.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** W Australia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Flinders Reef, Elizabeth and Middleton Reefs, N coastal New South Wales, Solitary Is.

**W Australia:** Ashmore Reef, Rowley Shoals, Kimberley coast, Dampier Arch., Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Port Denison.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** Hong Kong, Vanuatu.

### *Acropora stoddarti*

Pillai and Scheer, 1976

Rare in the Philippines, often the dominant species of lower reef slopes of the Houtman Abrolhos Is., uncommon throughout the remainder of W Australia. The most common *Acropora* of many locations of Tanegashima but not recorded elsewhere in Japan. Radial corallites of Tanegashima coralla are smaller than those from other Indo-west Pacific countries. These form a distinct geographic subspecies, but may prove to be a separate species.

TAXONOMIC REFERENCES: Pillai and Sheer (1976), Veron (1986a), Veron (1991a).

TYPE LOCALITY: Maldives Is. to W Australia.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Saudi Arabia to Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** Scott Reef, Rowley Shoals, Dampier Arch., Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Tanegashima.

**Additional Central Indo-Pacific records:** none.

*Acropora echinata*

(Dana, 1846)

Common in some protected habitats of the Philippines and S Ryukyu Is. and in some lower reef slopes and lagoons of the GBR and Vanuatu. Colonies are greyish green in colour in the Ryukyus, cream with blue or purple branchlet tips in the GBR and Vanuatu, otherwise they show no taxonomically significant differences.

TAXONOMIC REFERENCES: Wallace (1978), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Fiji and Sulu Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Maldive Is. to Marshall Is. and Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Indonesia, N Papua New Guinea, Vanuatu.

*Acropora subglabra*

(Brook, 1891)

Recorded in W Australia only from protected lagoons of NW Shelf reefs where it may be dominant in restricted areas. Very common in some protected shallow lagoons and deeper biotopes of the GBR, Vanuatu, the Philippines and S Ryukyu Is. Colonies from the GBR and Philippines frequently have distinct yellow tips to axial corallites; they are usually cream or pale brown in the Ryukyu Is.

TAXONOMIC REFERENCES: Wallace (1978), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Singapore.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia to Vanuatu and ?Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait and Central GBR.

**W Australia:** NW Shelf Reefs.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

### *Acropora carduus*

(Dana, 1846)

Sometimes common in protected biotopes of the GBR and Vanuatu, the Philippines and S Ryukyu Is. The range of colour and morphological variation is very similar throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Indonesia, N Papua New Guinea, Vanuatu.

### *Acropora insignis*

Nemenzo, 1967

Uncommon in Japan. Environment-correlated variation has not been studied. Coralla have similar skeletal detail to Philippines coralla.

**TAXONOMIC REFERENCE:** Nemenzo (1967).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tosashimizu.

**Additional Central Indo-Pacific records:** Vanuatu.

*Acropora elegans*

Edwards and Haime, 1860

Recorded in Japan from laboratory specimens only. Colonies are all flat interlocking branches with corallites on the upper side only.

**TAXONOMIC REFERENCES:** Faustino (1927).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Philippines to Japan.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

**Philippines - Japan:** ?Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** none.

*Acropora cardinae*

Wells, 1986

A species dredged from 55-130m beyond the outer reefs of the central GBR. Does not closely resemble any other species and nothing is known of its variation.

**TAXONOMIC REFERENCES:** Wells (1986).

**TYPE LOCALITY:** Central GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** GBR only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: central GBR.

W Australia: not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

*Acropora elseyi*

(Brook, 1892)

Common in Vanuatu and on the GBR, recorded only from NW Shelf reefs of W Australia, generally uncommon to rare in the Ryukyu Is. Vanuatu colonies and some GBR colonies usually have white branch tips. Coralla show no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Maldives Is. to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR.

**W Australia:** Ashmore Reef, Scott Reef.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

*Acropora longicyathus*

(Edwards and Haime, 1860)

Recorded only from protected lagoons of NW Shelf reefs of W Australia. Common in Vanuatu, the GBR and the Ryukyu Is. Coralla show no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Mozambique to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

### *Acropora rosaria*

(Dana, 1846)

Generally uncommon throughout the recorded Central Indo-Pacific distribution range. Has not been sufficiently studied for detailed comparisons between regions. Colonies are pale brown or pinkish- cream in the Ryukyu Is., deep blue on the GBR and S Papua New Guinea.

**TAXONOMIC REFERENCES:** Wallace (1978).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?E Africa to Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea and N and Central GBR.

**W Australia:** not found.

**Philippines - Japan:** Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Vanuatu.

### *Acropora* sp. E Australia 5

Rare, known only from Australia.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984) (as *Acropora* sp. 5).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** GBR only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

*Acropora loripes*

(Brook, 1892)

Common on the GBR, in Vanuatu and the Philippines, but known on the W Australian coast from only two specimens which have relatively small corallites. In Japan, only colonies from the Ryukyu Is. are readily identified as this species. These are very similar to those of the Philippines and GBR except that only corymbose growth forms have been recorded. Coralla from Tanegashima and the Amakusa Is. are corymbose plates with highly fused bases and relatively small axial corallites and are only tentatively placed in this species.

**TAXONOMIC REFERENCES:** Wallace (1978) (as *A. squarrosa* (Ehrenberg, 1834)), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:****Indo-Pacific longitudinal distribution:**

?Mozambique and the Philippines to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

*Acropora chesterfieldensis*

Veron and Wallace, 1984

Common in the eastern Coral Sea and Vanuatu.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Chesterfield Reefs.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Australia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Vanuatu.

### *Acropora granulosa*

(Edwards and Haime, 1860)

Common on lower reef slopes of the GBR and most tropical W Australian locations; rare at the Houtman Abrolhos Is. where it occurs only on lower reef slopes. Generally uncommon in the Philippines and Ryukyu Is., where plate-like colonies are similar to those of the GBR.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Bourbon Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red sea and Madagascar to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Acropora caroliniana*

Nemenzo, 1976

Generally rare in Vanuatu and on the GBR; known only from the Rowley Shoals and Ashmore Reef of W Australia where it also is rare. Uncommon in the Philippines.

Taxonomic note: The holotype of this species is more finely structured than has been observed in any colony *in situ*. Further study of intraspecific variation may indicate a name change is required. *Acropora rayneri* (Brook, 1893) from Fiji may be a senior synonym.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia to ?Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef, Rowley Shoals.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Indonesia, N Papua New Guinea, Vanuatu.

*Acropora willisae*

Veron and Wallace, 1984

Uncommon in Vanuatu and on the GBR, but a dominant species of shallow reef flats of the Ningaloo Reefs and common at the Houtman Abrolhos Is. of W Australia. Uncommon in the Ryukyu Is. where colonies show no taxonomically significant differences from those of the GBR. Colonies are mostly brown or fawn in colour throughout the distribution range.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Singapore to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Solitary Is.

**W Australia:** Scott Reef, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tosashimizu.

**Additional Central Indo-Pacific records:** Singapore, Vanuatu.

*Acropora florida*

(Dana, 1846)

Generally common in Australia and Vanuatu, uncommon in the Philippines and Ryukyu Is. Colonies from NW Shelf reefs of W Australia are similar to those of the GBR in structure and colour, while those from coastal locations and the Houtman Abrolhos Is. become prostrate, with flattened branches tending to become plate-like. The latter are brown, fawn, or more commonly, bright green. They also tend to have relatively large corallites and represent a distinct geographic sub-species not observed elsewhere in the Central Indo-Pacific. Usually pale brown in the Yaeyama Is. and GBR and pinkish-brown or bright green in the Kerama Is. and tropical W Australia. Very large colonies such as are found on the GBR have not been found in Japan.

TAXONOMIC REFERENCES: Wallace (1978), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Fiji.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: ?E Africa and Maldives Is. to Vanuatu and  
?Marshall Is.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: S Papua New Guinea, Torres Strait,  
N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

W Australia: NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo  
Reef Tract, Shark Bay region, Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is.,  
Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

Additional Central Indo-Pacific records: Thailand, Malaysia, Vietnam, Indonesia,  
Taiwan, N Papua New Guinea, Vanuatu.

*Acropora mirabilis*

Quelch, 1886

Uncommon; forms corymbose plates with tapering branchlets with small axial  
corallites. Radial corallites are similar to those of *A. millepora*, only much smaller and less  
exsert. Radial corallites have very well developed septa, including distinct directive septa  
and an abortive third cycle.

TAXONOMIC REFERENCES: Quelch (1886), Veron (1991a).

TYPE LOCALITY: Banda Sea.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: ?Mauritius and Banda Sea to Vanuatu.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Tanegashima, Tosashimizu.

Additional Central Indo-Pacific records: Vanuatu.

*Acropora sarmentosa*

(Brook, 1892)

Common on the GBR and in Vanuatu, uncommon in the Ryukyu Is. Colonies from the Ryukyu Is. are very similar to corymbose plate-like coralla from the Philippines and GBR.

**TAXONOMIC REFERENCES:** Wallace (1978), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs.

**W Australia:** Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Vietnam, N Papua New Guinea, Vanuatu.

*Acropora striata*

(Verrill, 1866)

Uncommon in Japan except at Tanegashima where it forms monospecific stands many hundreds m<sup>2</sup>.

**TAXONOMIC REFERENCES:** Veron (1991a).

**TYPE LOCALITY:** Ryukyu Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Japan only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** none.

*Acropora wallaceae*

Veron, 1990

Uncommon; shows no taxonomically significant geographic variation throughout the recorded distribution range.

TAXONOMIC REFERENCES: Veron and Wallace (1984) (as *Acropora* sp. 6); Veron (1990c).

TYPE LOCALITY: GBR.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Thailand to E Australia.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: N and Central GBR.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is.

Additional Central Indo-Pacific records: Thailand.

*Genus Astreopora*

de Blainville, 1830

*Astreopora myriophthalma* is by far the most common *Astreopora* of the E and W Australian coast.

*Astreopora myriophthalma*

(Lamarck, 1816)

Common throughout the recorded Central Indo-Pacific distribution range. Colonies are generally massive except at the Houtman Abrolhos Is. where they are submassive or flat, with explanate borders.

TAXONOMIC REFERENCES: Lamberts (1982), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Unrecorded.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Red Sea and E. Africa to Pitcairn Is.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Astreopora* sp. E Australia

Rare throughout the recorded distribution range.

**TAXONOMIC REFERENCE:** Veron and Wallace (1984) (as *Astreopora* sp. 1).

#### **DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Singapore to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** N and Central GBR.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Singapore.

### *Astreopora listeri*

Bernard, 1896

Sometimes common in shallow lagoons of the GBR, rare in Japan where coralla are similar to those of the GBR.

**TAXONOMIC REFERENCES:** Lamberts (1982), Bernard (1896), Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Tonga.

#### **DISTRIBUTION:**

**West to East Distribution:** E. Africa to Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

Additional Central Indo-Pacific records: Singapore, Vietnam, Indonesia, Taiwan, N Papua New Guinea.

*Astreopora gracilis*

Bernard, 1896

Uncommon at Cocos (Keeling) Atoll, rare at Vanuatu, generally uncommon elsewhere in the recorded Central Indo-Pacific distribution range and shows no taxonomically significant geographic variation.

TAXONOMIC REFERENCES: Lamberts (1982), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Solomon Is.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Cocos (Keeling) Is. to Marshall Is.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

W Australia: Ashmore Reef, Scott Reef, Dampier Arch., Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Tosashimizu, Amami Is., Kushimoto.

Additional Central Indo-Pacific records: Cocos (Keeling) Atoll, Malaysia, Taiwan, N Papua New Guinea, Vanuatu.

*Astreopora explanata*

Veron, 1985

Common at the Houtman Abrolhos Is., becoming less common in tropical W Australian locations. Common on protected upper reef slopes of Vanuatu where colonies are usually encrusting and do not form tiers as they commonly do in W Australia.

TAXONOMIC REFERENCES: Veron (1985, 1986a).

TYPE LOCALITY: Houtman Abrolhos Is.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Gulf of Oman to Marshall Is.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: S Papua New Guinea, Torres Strait.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Tanegashima.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Vanuatu.

### *Astreopora incrassata*

Bernard, 1896

Second to *A. myriophthalma* in abundance in the Ryukyu Is. and is the most common *Astreopora* of Japan mainland locations.

**TAXONOMIC REFERENCES:** Bernard (1896), Veron (1991a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Japan only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** none.

### *Astreopora moretonensis*

Veron and Wallace, 1984

Rare in tropical, but common in temperate localities of E Australia.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Middleton Reef.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Thailand to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** Not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Thailand.

*Astreopora cucullata*

Lamberts, 1980

Rare throughout the recorded Central Indo-Pacific distribution range.

TAXONOMIC REFERENCES: Lamberts (1982), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: Samoa and Marshall Is.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: ?Malaysia and E Australia to Marshall Is.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: Coral Sea, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs.

W Australia: not found.

Philippines - Japan: Philippines.

Additional Central Indo-Pacific records: Vietnam, Indonesia, Taiwan, Malaysia.

*Astreopora ocellata*

Bernard, 1896

Rare throughout the recorded Central Indo-Pacific distribution range.

TAXONOMIC REFERENCES: Lamberts (1982), Veron and Wallace (1984), Veron (1986a).

TYPE LOCALITY: GBR.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: ?Reunion and W Australia to Marshall Is.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

W Australia: Ashmore Reef, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is.

Additional Central Indo-Pacific records: Vietnam, Malaysia, N Papua New Guinea, S Papua New Guinea.

*Astreopora suggesta*

Wells, 1954

Very rare in Japan; the present identification is tentative.

**TAXONOMIC REFERENCES:** Wells (1954), Lamberts (1982).

**TYPE LOCALITY:** Marshall Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Mascarene Is. and Philippines to Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Taiwan, S Papua New Guinea.

*Astreopora* sp. Papua New Guinea

Rare; known only from S Papua New Guinea. Has small corallites similar to those of *A. suggesta*.

**TAXONOMIC REFERENCES:** Veron and Kelley (1988).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Papua New Guinea only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea.

W Australia: not found.

Philippines - Japan: not found.

**Additional Central Indo-Pacific records:** none.

*Astreopora macrostoma*

Veron and Wallace, 1984

Rare throughout the recorded distribution range except at some stations at Tanegashima; coralla are very similar to those of the GBR.

**TAXONOMIC REFERENCES:** Veron and Wallace (1984), Veron (1986a).

**TYPE LOCALITY:** Chesterfield Reefs.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: Coral Sea.

W Australia: not found.

Philippines - Japan: Okinawa Is., Tanegashima.

**Additional Central Indo-Pacific records:** Malaysia, Vanuatu.

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7

# *Family Poritidae*

## Gray, 1842

No *Goniopora* or *Alveopora* have been recorded from Cocos (Keeling) Atoll, but both are recorded at Christmas I. (Indian Ocean), with 4 and 1 species respectively.

### *Genus Porites*

Link, 1807

Most *Porites* species from temperate locations form small colonies. Only *P. lutea* is known to form large colonies at the Houtman Abrolhos Islands. The presence of *P. eridani* and probably a second *P. cylindrica*- like species at Ashmore Reef, indicate an Indonesian influence not found elsewhere in Australia.

This, more than any other major genus, is in need of extensive taxonomic revision. This is partly because rare massive species may be difficult or impossible to recognise *in situ* allowing them to remain undetected in the presence of abundant species.

#### *Porites solidia*

(Forskål, 1775)

Common on the GBR, uncommon at Cocos (Keeling) Atoll, probably rare in the Ryukyu Is.

**TAXONOMIC REFERENCES:** Veron (1986a), Veron and Pichon (1982).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Hawaii and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, N and Central GBR, Capricorn and Bunker Reefs Elizabeth and Middleton Reefs.

**W Australia:** Scott Reef, Rowley Shoals, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Indonesia, Cocos (Keeling) Atoll, Taiwan, N Papua New Guinea, Malaysia, Vanuatu.

### *Porites lobata*

Dana, 1846

Common throughout the recorded Central Indo-Pacific distribution range where colonies are large and massive, except at the Houtman Abrolhos Is. where they are small and flat. Probably the most common *Porites* of the Ryukyu Is. Distinguishing characters, notably corallite walls having three concentric rows of denticles, are uniform throughout the distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Mozambique to central America.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tosashimizu.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Hong Kong, Malaysia, Vietnam, Indonesia, Cocos (Keeling) Atoll, Taiwan, Vanuatu.

### *Porites murrayensis*

Vaughan, 1918

Uncommon on the GBR, probably common in Japan. Distinguishing characters, notably small corallites with a conspicuous central fossa and usually four well-developed pali, are the same as in coralla from the Philippines and the GBR.

**TAXONOMIC REFERENCES:** Vaughan (1918), Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?E Africa and Maldive and Nicobar Is. to Samoa and Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan.

*Porites australiensis*

Vaughan, 1918

Common on the GBR and in Vanuatu, probably uncommon in the Ryukyu Is. Ryukyu I. coralla have corallite structures similar to those of GBR except that in some, there is little tendency to have three pali on the septal triplet.

**TAXONOMIC REFERENCES:** Vaughan (1919), Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?E Africa to Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Porites lutea*

Edwards and Haime, 1860

Very common on the GBR, probably common in Japan, but some coralla studied are attributed to this species with doubt. The only species of *Porites* known to form very large colonies at the Houtman Abrolhos Is.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea, The Gulf and E Africa to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tosashimizu.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Hong Kong, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

*Porites stephensoni*

Crossland, 1952

Rare on the GBR, where it is found only on reef flats. Probably uncommon in Japan but little studied. Corallites of some coralla collected show no taxonomically significant differences from GBR coralla.

**TAXONOMIC REFERENCES:** Crossland (1952), Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Saudi Arabia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Central GBR.

**W Australia:** Ashmore Reef.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

*Porites somaliensis*

Gravier, 1910

The most abundant massive *Porites* on some reef flats of Cocos (Keeling) Atoll. Colonies from shallow water usually have a knobby growth form. Corallites are closest to *P. stephensi* but the present species appears to be distinct from any Australian species.

**TAXONOMIC REFERENCE:** Veron (1990b).

**TYPE LOCALITY:** Somalia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to Cocos (Keeling) Atoll.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: not found.

**Additional Central Indo-Pacific records:** Cocos (Keeling) Atoll.

*Porites mayeri*

Vaughan, 1918

Seldom common on the GBR, where it is found primarily in protected shallow water. Recorded from Japan from a single corallum; this is indistinguishable from GBR coralla.

**TAXONOMIC REFERENCES:** Vaughan (1918), Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Red Sea and ?E Africa to GBR.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Malaysia, Vietnam, Indonesia.

*Porites evermanni*

Vaughan, 1907

Generally uncommon throughout the recorded Central Indo-Pacific distribution range. Polyps throughout this range are usually extended during the day and are yellow-brown in colour.

TAXONOMIC REFERENCES: Vaughan (1907, 1918), Veron and Marsh (1988) (as *Porites* sp. 1).

TYPE LOCALITY: Hawaii.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Cocos (Keeling) Atoll to Hawaii.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef, Scott Reef, Dampier Arch., Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Cocos (Keeling) Atoll, S Papua New Guinea.

*Porites densa*

Vaughan, 1918

Sometimes common on back reef margins of the GBR, abundance elsewhere is unrecorded.

TAXONOMIC REFERENCES: Vaughan (1918), Veron and Pichon (1982) and Veron (1986a).

TYPE LOCALITY: GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?E Africa to GBR.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia.

## *Porites myrmidonensis*

Veron, 1985

A well-defined species common only on exposed upper slopes of the GBR.

**TAXONOMIC REFERENCES:** Veron (1985, 1986a), Veron and Pichon (1982) (as *Porites* sp. 1).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Australia and Coral Sea.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

## *Porites okinawensis*

Veron, 1990

Colonies are massive or encrusting. Corallites are superficial, unevenly distributed. Wall thicknesses between adjacent corallites vary from less than the thickness of a septum, to over 2mm. The *Porites* pattern of fusion is obscure in most corallites, due to a very high degree of fusion. Columellae are small or absent; highly fused radii link the septa to the corallite centre. Rare in the Ryukyu Is., common at Izu, mainland Japan.

**TAXONOMIC REFERENCES:** Veron (1990c, 1991a).

**TYPE LOCALITY:** Okinawa I., Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Japan to ?Palau.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Okinawa Is., Izu.

**Additional Central Indo-Pacific records:** none.

*Porites cylindrica*

Dana, 1846

The most common species of intertidal reef flats and some upper reef slopes of Cocos (Keeling) Atoll and forms extensive monospecific stands in a wide variety of environments of Vanuatu, the GBR and the Ryukyu Is. Has a similar range of variation throughout the recorded Central Indo-Pacific distribution range.

TAXONOMIC REFERENCES: Veron and Pichon (1982) and Veron (1986a).

TYPE LOCALITY: Fiji.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** E Africa to Marshall Is. and Tonga.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Hong Kong, N Papua New Guinea, Cocos (Keeling) Atoll, Taiwan, Vanuatu.

*Porites nigrescens*

Dana, 1846

Generally common, with a similar range of variation in a wide range of environments throughout the recorded Central Indo-Pacific distribution range.

TAXONOMIC REFERENCES: Veron and Pichon (1982) and Veron (1986a).

TYPE LOCALITY: Fiji.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** E Africa to Fiji and Tonga.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is

**Additional Central Indo-Pacific records:** Thailand, N Papua New Guinea, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

### *Porites sillimaniani*

Nemenzo, 1976

Common in Vanuatu and the Ryukyu Is. where coralla show no differences from those of the Philippines.

**TAXONOMIC REFERENCES:** Nemenzo (1976).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** none.

### *Porites negrosensis*

Veron, 1990

Rare in both the Philippines and the Ryukyu Is.; coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCE:** Veron (1990c, 1991a).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines and Ryukyu Is.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** none.

*Porites latistella*

Quelch, 1886

Uncommon in the Ryukyu Is. Coralla from Vanuatu, the Philippines and the Ryukyu Is. show no taxonomically significant geographic variation.

TAXONOMIC REFERENCES: Quelch (1886).

TYPE LOCALITY: Tahiti.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Philippines to French Polynesia.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is.

Additional Central Indo-Pacific records: Vanuatu.

*Porites attenuata*

Nemenzo, 1955

Common in the Vanuatu and the Ryukyu Is., very common in the Philippines. Colonies show no taxonomically significant geographic variation throughout the recorded distribution range.

TAXONOMIC REFERENCES: Nemenzo (1955), Veron and Hodgson (1989).

TYPE LOCALITY: Philippines.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Philippines to Vanuatu.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is.

Additional Central Indo-Pacific records: Vanuatu.

*Porites deformis*

Nemenzo, 1955

Generally uncommon. Readily recognised *in situ* by having irregular, highly anastomosed branches. Corallites are shallow, giving the corallum a smooth appearance.

**TAXONOMIC REFERENCES:** Nemenzo (1955), Veron and Hodgson (1989).

**TYPE LOCALITY:** Philippines to Vanuatu.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Vanuatu.

*Porites cumulatus*

Nemenzo, 1955

Probably rare; of doubtful taxonomic validity.

**TAXONOMIC REFERENCES:** Nemenzo (1955).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** none.

*Porites lichen*

Dana, 1846

Generally common throughout the recorded Central Indo-Pacific distribution range. Has a similar range of variation and is usually yellow or mustard throughout this range, but may be other colours.

TAXONOMIC REFERENCES: Veron and Pichon (1982) and Veron (1986a).

TYPE LOCALITY: Fiji.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Red Sea to Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs, Lord Howe Is.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, Vanuatu.

*Porites annae*

Crossland, 1952

Common on the GBR in protected shallow or turbid water, generally uncommon in Vanuatu and the Ryukyu Is. Has a similar range of variation throughout the recorded distribution range.

TAXONOMIC REFERENCES: Crossland (1952), Veron and Pichon (1982) and Veron (1986a).

TYPE LOCALITY: GBR.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Malaysia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Malaysia, Thailand, Vietnam, Indonesia, Taiwan, Vanuatu.

*Porites heronensis*

Veron, 1985

Common in temperate east Australian locations, rare in the tropics. Similarly common in mainland Japan and uncommon in the Ryukyu Is. Septa are usually not as disarranged in coralla from Japan as are those from extra-tropical Australian locations; otherwise there is little difference.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs, Lord Howe Is., Solitary Is.

**W Australia:** Kimberley coast, Dampier Arch., Houtman Abrolhos Is.

**Philippines - Japan:** Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu, Tateyama.

**Additional Central Indo-Pacific records:** S Papua New Guinea.

*Porites vaughani*

Crossland, 1952

Sometimes common on the GBR, generally uncommon in Vanuatu and the Ryukyu Is. Coralla show no taxonomically significant geographic variation throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Crossland (1952), Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia to Vanuatu and Cook Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Malaysia, Thailand, Vietnam, Indonesia, Vanuatu.

*Porites eridani*

Umbgrove, 1940

Common in the Philippines, known in Australia only from Ashmore Reef.

**TAXONOMIC REFERENCES:** Veron and Marsh (1988).**TYPE LOCALITY:** Indonesia.**DISTRIBUTION:****Indo-Pacific longitudinal distribution:** Indonesia and W Australia.**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: Ashmore Reef.

Philippines - Japan: Philippines.

**Additional Central Indo-Pacific records:** Indonesia.*Porites* sp. W Australia

Generally uncommon and little studied, restricted to coastal localities of W Australia.

**TAXONOMIC REFERENCE:** Veron and Marsh (1988) (as *Porites* sp.3).**DISTRIBUTION:****Indo-Pacific longitudinal distribution:** W Australia only.**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: Ningaloo Reef Tract, Houtman Abrolhos Is.

Philippines - Japan: not found.

**Additional Central Indo-Pacific records:** none.*Porites aranetai*

Nemenzo, 1955

Common in some places at Dampier Archipelago, probably rare elsewhere.

**TAXONOMIC REFERENCE:** Nemenzo (1955), Veron and Marsh (1988) (as *Porites* sp. 2).**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Sri Lanka to Japan.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: Dampier Arch., Pilbara coast, Ningaloo Reef Tract,  
Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is.

Additional Central Indo-Pacific records: none.

*Porites horizontalata*

Hoffmeister, 1925

Generally uncommon in the Ryukyu Is. where it has a similar range of variation as in the Philippines.

**TAXONOMIC REFERENCE:** Hoffmeister (1925).

**TYPE LOCALITY:** Samoa.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Chagos to Samoa.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is.

Additional Central Indo-Pacific records: Vanuatu, N Papua New Guinea.

*Porites rus*

(Forskål, 1775)

Generally common throughout the recorded Central Indo-Pacific distribution range and shows no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Costa Rica.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea,

Torres Strait, N and Central GBR, Pompey and Swain Reefs.

W Australia: NW Shelf Reefs, Dampier Archipelago.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is.

Additional Central Indo-Pacific records: Thailand, Malaysia, Vietnam, Indonesia,  
Cocos (Keeling) Atoll, Taiwan, N Papua New Guinea, Vanuatu.

***Porites* sp. Cocos (Keeling) Atoll**

Forms plates and irregular branches and columns. Corallites are essentially similar to those of *P. rus* and *P. latistella* Quelch, but are smaller than both.

TAXONOMIC REFERENCE: Veron (1990b).

**DISTRIBUTION:**

Indo-Pacific longitudinal distribution: Cocos (Keeling) Atoll only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: Cocos (Keeling) Atoll.

***Porites* sp. Papua New Guinea 1**

Recorded only from one Central Indo-Pacific locality and not studied.

TAXONOMIC REFERENCE: Veron and Kelley (1989) (as *P. californica*).

**DISTRIBUTION:**

Indo-Pacific longitudinal distribution: ? Papua New Guinea to far eastern Pacific.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea.

W Australia: not found.

Philippines - Japan: ?Philippines.

Additional Central Indo-Pacific records: S Papua New Guinea.

***Porites*** sp. Papua New Guinea 2

Recorded only from one Central Indo-Pacific locality and not studied.

**TAXONOMIC REFERENCE:** Veron and Kelley (1988) (as *Porites* sp. 1).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Papua New Guinea only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** S Papua New Guinea.

***Genus Stylaraea***

Edwards and Haime, 1851

***Stylaraea punctata***

(Linnaeus, 1758)

Very rare throughout most of the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Crossland (1952), Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** Fossil from Europe?.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:**

Red Sea and E Africa to Guam and E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Central GBR.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

## *Genus Goniopora*

de Blainville, 1830

Most *Goniopora* species, especially those forming thick-branched or massive colonies, are clearly identified only when both living polyp and skeletal characters are known. Within a particular country or region, species are not particularly difficult to identify, either *in situ* or from collected coralla, but over a wider geographic range the taxonomic significance of colour and morphological variations can become difficult to determine with any certainty.

### *Goniopora djiboutiensis*

Vaughan, 1907

Common on the GBR, generally uncommon in Japan, rare in Vanuatu. Shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** Somalia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to Vanuatu and ? Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Flinders Reef, Solitary Is.

**W Australia:** Scott Reef, Rowley Shoals, Dampier Arch., Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, N Papua New Guinea, Vietnam, Indonesia, Taiwan, Vanuatu.

### *Goniopora stokesi*

Edwards and Haime, 1851

Rare or uncommon throughout the recorded Central Indo-Pacific distribution range. Shows little taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef, Dampier Arch., Houtman Abrolhos Is., SW coastal localities S to Port Gregory.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima, Tosashimizu, Amakusa Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

### *Goniopora lobata*

Edwards and Haime, 1860

Generally common throughout the recorded Central Indo-Pacific distribution range and shows a similar range of variation from the GBR to the Ryukyu Is. Always difficult to identify with certainty in higher latitudes, where skeletal variations occur that are primarily correlated with non-reefal environments.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea, The Gulf and E Africa to Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Moreton Bay, Elizabeth and Middleton Reefs, Solitary Is., N coastal New South Wales.

**W Australia:** Ashmore Reef, Scott Reef, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu?, Tateyama?

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

*Goniopora pendulus*

Veron, 1985

Uncommon throughout the recorded distribution range. Colonies from Japan and W Australia have the same distinctive long, tapering, pale to dark brown tentacles. Coralla from both regions are very similar.

**TAXONOMIC REFERENCES:** Veron (1985, 1986a).

**TYPE LOCALITY:** Houtman Abrolhos Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Central GBR  
(not previously recorded).

**W Australia:** Ashmore Reef, Kimberley coast, Dampier Arch., Houtman Abrolhos Is., SW coastal locations S to Cockburn Sound.

**Philippines - Japan:** Philippines, Tanegashima, Amakusa Is., Kushimoto.

**Additional Central Indo-Pacific records:** none.

*Goniopora columna*

Dana, 1864

Common and has a similar range of variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Vanuatu and ?Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef, Scott Reef, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Izu, Tateyama.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Malaysia, Thailand, Hong Kong, Vietnam, Indonesia, Taiwan, Vanuatu.

*Goniopora somaliensis*

Vaughan, 1907

Very common in Vanuatu where it forms extensive encrusting colonies up to 5 m diameter, usually pinkish or brown in colour, found mostly on lower reef slopes and in lagoons. Generally uncommon on the GBR and in the Ryukyu Is., becoming common at Tanegashima.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** Somalia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Vanuatu and ?Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** Ashmore Reef.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

*Goniopora tenuidens*

(Quelch, 1886)

Generally common in Vanuatu, the GBR and the Ryukyu Is. Shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Oman to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay, Houtman Abrolhos Is., SW coastal locations to Port Gregory.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, Thailand, N Papua New Guinea, Vanuatu.

### *Goniopora cellulosa*

Veron, 1990

Possibly a high latitude endemic of Japan. Calices of some coralla, especially those from Tanegashima, show very great variation in depth as well as septal development, otherwise no geographic variation has been observed.

**TAXONOMIC REFERENCES:** Veron (1990c, 1991a).

**TYPE LOCALITY:** Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Japan only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Amami Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** none.

### *Goniopora burgosi*

Nemenzo, 1955

Uncommon in the Ryukyu Is. Has not been studied in detail, but has the same appearance *in situ* in the Ryukyu Is. and Philippines. A single corallum from Thailand is relatively columnar in growth form.

**TAXONOMIC REFERENCES:** Nemenzo (1955), Veron and Hodgson (1989).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand.

*Goniopora minor*

Crossland, 1952

Common, shows no taxonomically significant variation throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Crossland (1952), Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Red Sea and South China Sea to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Malaysia, Thailand, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Goniopora norfolkensis*

Veron and Pichon, 1982

Uncommon throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Hong Kong and Indonesia to Norfolk I.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: Coral Sea, Central GBR, Capricorn and Bunker Reefs.

W Australia: not found.

Philippines - Japan: Philippines.

Additional Central Indo-Pacific records: Vietnam, Indonesia.

***Goniopora pandoraensis***

Veron and Pichon, 1982

Rare in Vanuatu, generally uncommon on the GBR and in the Ryukyu Is. Has been observed with bleached branches in both the Ryukyu Is. and GBR.

TAXONOMIC REFERENCES: Veron and Pichon (1982) and Veron (1986a).

TYPE LOCALITY: GBR.

**DISTRIBUTION:**

Indo-Pacific longitudinal distribution: Malaysia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: Torres Strait, N and Central GBR, Pompey and Swain Reefs.

W Australia: Ashmore Reef, Kimberley coast.

Philippines - Japan: Philippines, Yaeyama Is.

Additional Central Indo-Pacific records: Thailand, Malaysia, Vietnam, Vanuatu.

***Goniopora eclipsensis***

Veron and Pichon, 1982

Uncommon and usually restricted to protected, turbid, fringing reefs of the GBR.

TAXONOMIC REFERENCES: Veron and Pichon (1982) and Veron (1986a).

TYPE LOCALITY: GBR.

**DISTRIBUTION:**

Indo-Pacific longitudinal distribution: Malaysia to E Australia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: Central GBR.

W Australia: not found.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: Malaysia.

## *Goniopora palmensis*

Veron and Pichon, 1982

Common in some shallow reefs of the GBR and the Philippines. Shows little or no taxonomically significant geographic variation and little or no colour variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Malaysia.

## *Goniopora* sp. W Australia 2

The single specimen attributed to this species, from Ashmore Reef, may be an ecomorph of *G. fruticosa* Saville-Kent (1891), but has smaller corallites than coralla of this species from the GBR.

**TAXONOMIC REFERENCE:** Veron and Marsh (1988) (as *Goniopora* sp. 2).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** Ashmore Reef.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

*Goniopora fruticosa*

Saville-Kent, 1891

Uncommon on the GBR where it occurs primarily on protected upper reef slopes. Rare in Japan where coralla show wide variation in septal development, encrusting coralla having fine irregular septa.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Elizabeth and Middleton Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia.

*Goniopora stutchburyi*

Wells, 1955

Distinctive but generally uncommon throughout the recorded Central Indo-Pacific distribution range. Corallites of Vanuatu coralla are mostly smaller than those of GBR coralla, otherwise the species shows no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Wells (1955), Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** Moreton Bay (E Australia).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** S India to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Moreton Bay, Elizabeth and Middleton Reefs.

**W Australia:** Ashmore Reef, Cartier Reef, Rowley Shoals, Kimberley coast, Dampier Arch., Shark Bay, Houtman Abrolhos Is.

**Philippines - Japan:** Yaeyama Is., Okinawa Is., Tosashimizu, Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Malaysia, Hong Kong, Taiwan, N Papua New Guinea, Vanuatu.

*Goniopora polyformis*

Zou, 1980

Apparently endemic to the South China Sea, where is rare.

**TAXONOMIC REFERENCE:** Veron (1991a).

**TYPE LOCALITY:** Xisha Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Xisha Is. to mainland Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Amakusa Is.

**Additional Central Indo-Pacific records:** none.

*Goniopora* sp. E Australia 1

Rare. The distinct gonioporoid pattern of fusion is less obvious in Japanese coralla than in Australian coralla and thus there remains some doubt that the two are the same species. This species has not been studied *in situ*.

**TAXONOMIC REFERENCE:** Veron and Pichon (1982) (as *Goniopora* sp. 1).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Japan to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** N and Central GBR.

**W Australia:** not found.

**Philippines - Japan:** Yaeyama Is., Okinawa Is., Shirahama.

**Additional Central Indo-Pacific records:** none.

*Goniopora* sp. E Australia 2

Rare and little studied. The taxonomic status of this species has not been confirmed.

**TAXONOMIC REFERENCE:** Veron and Pichon (1982) (as *Goniopora* sp. 2).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Australia only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait,

N and Central GBR.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

***Goniopora* sp. W Australia 1**

Rare and little studied. The taxonomic status of this species has not been confirmed.

**TAXONOMIC REFERENCE:** Veron and Marsh (1988) (as *Goniopora* sp. 1).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** Ashmore Reef.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

***Goniopora* sp. W Australia 3**

This third W Australian unidentified *Goniopora* is a tentative grouping of specimens only.

**TAXONOMIC REFERENCE:** Veron and Marsh (1988) (as *Goniopora* sp.).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** Rowley Shoals, Dampier Archipelago.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

## *Genus Alveopora*

de Blainville, 1830

The species of *Alveopora*, more than any other scleractinian genus, show no consistent habitat preference. Several are restricted to protected or turbid biotopes, others are restricted to exposed upper reef slopes, while some occupy a wide range of biotopes.

Probably more abundant, and develop larger colonies, at the Houtman Abrolhos Islands than on any other Australian reef.

### *Alveopora catalai*

Wells, 1968

Generally rare, but may form extensive stands throughout the recorded Central Indo-Pacific distribution range. Forms very extensive stands in two locations of the Yaeyama Is., but has not been found elsewhere in Japan. Has a similar range of variation and colour (creamy-yellow with white centres) throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Wells (1968), Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** New Caledonia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** Ashmore Reef, Scott Reef.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, N Papua New Guinea, New Caledonia, Vanuatu.

### *Alveopora allangi*

Hoffmeister, 1925

Uncommon on the GBR, sometimes common in some lagoonal areas of NW Shelf reefs and on lower reef slopes of the Houtman Abrolhos Is., W Australia, but generally uncommon, and shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** Samoa.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Flinders Reef, Lord Howe Is.

**W Australia:** Scott Reef, Rowley Shoals, Kimberley coast, Ningaloo Reef Tract, Shark Bay, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Malaysia, Hong Kong, N Papua New Guinea.

*Alveopora gigas*

Veron, 1985

A very distinctive species with an anomalous distribution. Common on lower reef slopes of the Houtman Abrolhos Is., not recorded elsewhere in W Australia. Recorded elsewhere only from the fringing reefs of the Daintree coast of the GBR where living colonies are identical in colour and appearance to those of the Houtman Abrolhos Is.

**TAXONOMIC REFERENCES:** Veron (1985, 1986a).

**TYPE LOCALITY:** Houtman Abrolhos Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Central GBR.

**W Australia:** Houtman Abrolhos Is.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

*Alveopora marionensis*

Veron and Pichon, 1982

Common on Marion Reef, rare or uncommon elsewhere.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** Coral Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, N GBR, Flinders Reef.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Vietnam, Vanuatu, N Papua New Guinea.

*Alveopora fenestrata*

(Lamarck, 1816)

Uncommon in most Australian locations except at the Houtman Abrolhos Is. where it is frequently found on lower reef slopes.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** "Southern Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, N and Central GBR,

Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef, Rowley Shoals, Kimberley coast, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is., coastal locations S to Rottnest I.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Indonesia, Malaysia, Vanuatu, Taiwan, N Papua New Guinea.

*Alveopora verrilliana*

Dana, 1872

Generally uncommon throughout the recorded Central Indo-Pacific distribution range, except at the Houtman Abrolhos Is. of W Australia. Colonies are typically composed of a complex of nodular branches. Skeletal characters of Japanese coralla are very similar to those of GBR and Philippine coralla, with corallites having well developed septal spines and a palisade of trabecular rods on the walls. These rods are poorly developed in Houtman Abrolhos I. coralla, which consequently appear to be a distinct geographic subspecies.

TAXONOMIC REFERENCES: Veron and Pichon (1982) and Veron (1986a).

TYPE LOCALITY: Hawaii.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Red Sea to Hawaii and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Central GBR, Elizabeth and Middleton Reefs.

**W Australia:** Ashmore Reef, Scott Reef, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Malaysia, Indonesia, Taiwan, Vanuatu, N Papua New Guinea.

### *Alveopora spongiosa*

Dana, 1846

Common in Australia, but not Japan or Vanuatu. Found in a wide range of environments, including moderately exposed ones. Shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range. Usually chocolate brown, but often green in the Ryukyu Is.

TAXONOMIC REFERENCES: Veron and Pichon (1982) and Veron (1986a).

TYPE LOCALITY: Fiji.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Red Sea to Vanuatu and ?French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe Is.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract, Shark Bay, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Amakusa Is., Shirahama.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

*Alveopora japonica*

Eguchi, 1968

Restricted to shallow water of high latitude locations where it occupies habitats where other corals are seldom found. Usually rare, but relatively common in restricted locations. Appears to be endemic to Japan and Korea (Song, 1982).

**TAXONOMIC REFERENCES:** Eguchi (1968), Veron (1991a).

**TYPE LOCALITY:** Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Korea to mainland Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu, Tateyama.

**Additional Central Indo-Pacific records:** Korea.

*Alveopora excelsa*

Verrill, 1863

Japanese coralla are similar to those of the Philippines and are usually grey or brown in both countries.

**TAXONOMIC REFERENCES:** Veron (1991a).

**TYPE LOCALITY:** Singapore.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia to Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Malaysia.

*Alveopora tizardi*

Bassett-Smith, 1890

An ill-defined species with few conservative skeletal characters. Probably rare throughout the recorded distribution range. Japanese colonies are similar to colonies from the Philippines and are pale brown to pinkish brown in colour.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** South China Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Saudi Arabia to ?South China Sea to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** Rowley Shoals, Shark Bay, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Indonesia, Vanuatu, N Papua New Guinea.

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8

*Family*  
*Siderastreidae*

Vaughan and Wells, 1943

The genera of this family have generally ill-defined relationships. Only two genera, *Psammocora* and *Coscinaraea*, are widespread and common in the Central Indo-Pacific. *Anomastrea irregularis* von Marenzeller, 1901 has been recorded from Malaysia.

*Genus Pseudosiderastrea*

Yabe and Sugiyama, 1935

Has only one species, *P. tayamai*.

*Pseudosiderastrea tayamai*

Yabe and Sugiyama, 1935

Found only on rock substrates in shallow water where other corals are seldom found. Is one of the few species which displays almost no environment-correlated or taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Arafura Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Kuwait to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR.

**W Australia:** Kimberley coast, Lacedepedé I, Broome, Dampier Arch.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

### *Genus Siderastrea*

de Blainville, 1830

Recorded in the Central Indo-Pacific from a single specimen only from the Philippines.

### *Siderastrea savignyana*

Edwards and Haime, 1850

Rare, recorded in the Central Indo-Pacific only from the Philippines.

TAXONOMIC REFERENCE: Vaughan (1907), Veron and Hodgson (1989).

TYPE LOCALITY: Red Sea.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Red Sea to Philippines and Palau.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines.

Additional Central Indo-Pacific records: none.

### *Genus Psammocora*

Dana, 1846

In general, the species of *Psammocora* are distinct. They may show substantial environment-correlated variation, the same variation being repeated in most geographic regions. Except for some colonies of *P. nierstraszi*, coralla from W and E Australia are indistinguishable.

*Psammocora stellata* Verrill, 1866 has been recorded in both the E and W Pacific by Durham (1966). It has not been studied by the present author.

Taxonomic note: This genus was placed in Family Thamnasteriidae Vaughan and Wells, 1943 by Veron and Pichon (1976) and all previous authors.

### *Psammocora contigua*

(Esper, 1797)

Common in restricted shallow-water habitats in most Central Indo-Pacific countries but only one colony, a corallith, has been recorded from the Houtman Abrolhos Is. May be a

dominant species in some sub-tidal biotopes, especially of the Ryukyu Is., where colonies have a primarily nodular form. In deeper water, colonies have flattened branches. Frequently forms coralliths with short, tightly compacted branches. Corallite structure also varies greatly with environment.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea, The Gulf and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Moreton Bay, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Hong Kong, Malaysia, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

### *Psammocoranierstraszi*

van der Horst, 1921

Usually uncommon throughout the recorded distribution range; rare on the W Australian coast, except at Ashmore Reef. Colonies have a wide range of valley shapes, from short to sinuous, but show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** Indonesia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Aldabra to Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** N GBR, Elizabeth and Middleton Reefs.

**W Australia:** Ashmore Reef, Dampier Arch.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia.

*Psammocora superficialis*

Gardiner, 1898

Uncommon at Cocos (Keeling) Atoll, generally common throughout the remaining recorded Central Indo-Pacific distribution range. Usually a uniform grey or brownish colour, dark green in the Ryukyu Is., but may be other colours including brick red. Calices of coralla from mainland Japan are relatively large with distinct septa and this is observable *in situ*. Coralla from the Ryukyu Is. have a similar range of variation to those from the Philippines. Most variation in tropical locations is environment-correlated rather than geographic.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** Marshall Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** The Gulf and E Africa to Galápagos Is. and Costa Rica.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs, N coastal New South Wales, Solitary Is.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu, Tateyama.

**Additional Central Indo-Pacific records:** Cocos (Keeling) Atoll, Vietnam, Indonesia, Hong Kong, N Papua New Guinea, Vanuatu.

*Psammocora explanulata*

van der Horst, 1922

Always rare or uncommon. Forms thin plates or is encrusting, especially in biotopes where light availability is low. Shows wide environment-correlated variation but little taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** Amirante and Providence Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Mozambique and Red Sea to Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Torres Strait, N and Central GBR.

**W Australia:** Ashmore Reef, Kimberley coast, Dampier Arch., Ningaloo Reefs, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Indonesia.

***Psammocora digitata***

Edwards and Haime, 1851

More common in W than E Australia, except at the Houtman Abrolhos Is., where it is rare. Recorded at Cocos (Keeling) Atoll by Wells (1950), but not found there by Veron (1990b). Forms distinctive colonies in most shallow-water reefal biotopes, with short thick columnar or plate-like branches. Colonies may be stunted in various ways in turbid biotopes, but generally shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** China Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Seychelles Is. and Cocos (Keeling) Atoll to Fiji and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Flinders Reef.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

***Psammocora haimeana***

Edwards and Haime, 1851

Uncommon or rare throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** Seychelles Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Marshall Is., French Polynesia and ?Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Solitary Is.

**W Australia:** Scott Reef, Rowley Shoals, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Singapore, Malaysia, Hong Kong, Vietnam, Indonesia, Vanuatu, N Papua New Guinea.

*Psammocora profundacella*

Gardiner, 1898

Generally uncommon in the Central Indo-Pacific except in the Ryukyu Is. and Cocos (Keeling) Atoll where it is common. Usually grey or creamy-yellow, but sometimes pink or blue in the Ryukyu Is., commonly pink at Tanegashima, mostly dark brown or green with distinct calices in Japan mainland locations, green or pale pink at Cocos (Keeling) Atoll.

**TAXONOMIC REFERENCES:** Veron and Pichon (1976), Veron (1986a).

**TYPE LOCALITY:** Marshall Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Saudi Arabia and South Africa to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef, Scott Reef, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu, Tateyama.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

## *Psammocora vaughani*

Yabe and Sugiama, 1936

Common at Ishigaki I., Yaeyama Is.; probably uncommon or rare elsewhere, but has not been studied in detail. The species is retained in the genus *Psammocora* primarily because the corallites are the same size as other species of the genus; other skeletal characters, however, are *Coscinarea*-like.

**TAXONOMIC REFERENCES:** Vaughan (1918); Yabe *et al.* (1936).

**TYPE LOCALITY:** Ogasawara Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Japan to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Vanuatu.

## *Psammocora* sp. W Australia 1

Recorded from three specimens, all from the Ningaloo Reef Tract.

**TAXONOMIC REFERENCE:** Veron and Marsh (1988) (as *Psammocora* sp. 1).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: Ningaloo Reef Tract.

Philippines - Japan: not found.

**Additional Central Indo-Pacific records:** none.

## *Psammocora* sp. W Australia 2

Rare in Vanuatu, recorded only from a single specimen from Ashmore Reef.

**TAXONOMIC REFERENCE:** Veron and Marsh (1988) (as *Psammocora* sp. 2).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: Ashmore Reef.

Philippines - Japan: not found.

**Additional Central Indo-Pacific records:** Vanuatu.

### *Psammocora* sp. Philippines

Rare at Vanuatu and the Philippines.

**TAXONOMIC REFERENCE:** Veron and Hodgson (1989) (as *Psammocora* sp.).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines.

**Additional Central Indo-Pacific records:** Vanuatu.

### *Genus Coscinaraea*

Edwards and Haime, 1848

Only two species are common and widely distributed. Two are restricted to extra-tropical southern Australia, the remainder are uncommon, with tropical distributions. Has not been recorded from Cocos (Keeling) Atoll or Christmas I. (Indian Ocean).

### *Coscinaraea exesa*

(Dana, 1846)

Common in tropical Australian reefs and Vanuatu, rare in Japan and at the Houtman Abrolhos Is. Shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia to Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** Rowley Shoals, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Okinawa Is.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

*Coscinaraea columnata*

(Dana, 1846)

Usually uncommon throughout the recorded distribution range but may be common in some locations, especially in the GBR. Rare at the Houtman Abrolhos Is. Forms plate-like colonies up to 3 m diameter at Kushimoto. Shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** The Gulf, E Africa and Red Sea to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Moreton Bay, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is.

**W Australia:** Ashmore Reef, Scott Reef, Kimberley coast, Dampier Arch., Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Jurien Bay.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

## *Coscinaraea mcneilli*

Wells, 1962

One of the two *Coscinaraea* to be restricted to the extra-tropical southern Australian coast. Usually uncommon. Occurs with *C. marshae* in SW Australia. Shows no geographic and little environment- correlated variation except in the size of colonies.

TAXONOMIC REFERENCES: Wells (1962), Veron and Pichon (1980), Veron (1986a).

TYPE LOCALITY: Sydney.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: W to E Australia.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: S coastal New South Wales.

W Australia: SW coastal locations from Jurien Bay in the north, S to Geographe Bay, then E to Research Arch. on the S coast.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: none.

## *Coscinaraea marshae*

Wells, 1962

One of the two *Coscinaraea* to be restricted to the extra-tropical southern Australian coast. The distribution range is unlike any other coral except *Sympyllia wilsoni* and overlaps with that of *C. mcneilli* which has a similar general appearance. Usually uncommon except in some very restricted biotopes. Shows no geographic and little environment-correlated variation except in the size of the colonies.

TAXONOMIC REFERENCES: Wells (1962), Veron and Pichon (1980), Veron (1986a).

TYPE LOCALITY: SW Australia.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: SW Australia only.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: Houtman Abrolhos Is., SW coastal locations from Rottnest I. in the north, S to Geographe Bay, then E to Researche Arch. on the S coast.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: none.

*Coscinaraea wellsi*

Veron and Pichon, 1980

Uncommon and cryptic in all Central Indo-Pacific locations. Colonies are best developed on vertical or overhung rock faces where light availability is restricted. Relatively common at Lord Howe I. Coralla show no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Marshall Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Madagascar to E Australia and ?Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Okinawa Is., Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Indonesia, N Papua New Guinea, S Papua New Guinea.

*Coscinaraea monile*

(Forskål, 1775)

Rare or uncommon throughout the Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Crossland (1941).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Kuwait and Red Sea to Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Okinawa Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Malaysia.

*Coscinaraea hahazimaensis*

Yabe and Sugiyama, 1936

Uncommon, recorded by the author from single specimens from each of the localities below.

TAXONOMIC REFERENCES: Yabe and Sugiyama (1936).

TYPE LOCALITY: Japan.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Japan only.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Tanegashima, Tosashimizu, Kushimoto, Izu.

Additional Central Indo-Pacific records: none.

*Coscinaraea crassa*

Veron and Pichon, 1980

Rare throughout recorded distribution range. Japanese colonies may form large, flat plates; coralla show no taxonomically significant differences from those of the GBR. Nothing is recorded of environment-correlated variation.

TAXONOMIC REFERENCES: Veron and Pichon (1980), Veron (1986a).

TYPE LOCALITY: GBR.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Philippines to Papua New Guinea.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea.

W Australia: not found.

Philippines - Japan: Philippines, Okinawa Is., Amami Is., Tanegashima, Shirahama.

Additional Central Indo-Pacific records: N Papua New Guinea.

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9

*Family*  
*Agariciidae*  
Gray, 1847

Contains six Indo-Pacific genera as well as *Agaricia* of the West Indies. The distinction between *Pavona* and *Leptoseris* is uncertain in some species.

*Helioseris* was considered a valid Caribbean genus of Agariciidae by Wells (1973) and synonymised with *Leptoseris* by Dinesen (1980).

***Genus Pavona***  
Lamarck, 1801

Most species of *Pavona* are well-defined, although the genus is not clearly delineated from *Leptoseris*. Species are readily divided into 'leafy' and 'non-leafy' groupings, the former, with the greater number of nominal species, being poorly represented in Australia. There is very little difference, in structure, colour or abundance, between the *Pavona* of the E and W Australian coasts. Undescribed massive species are figured by Veron (1991a).

***Pavona cactus***  
(Forskål, 1775)

Generally common throughout the recorded Central Indo-Pacific distribution range but uncommon in Vanuatu and restricted to small areas at Cocos (Keeling) Atoll (where it was formerly widespread). Restricted to NW Shelf reefs of W Australia where it is very common. Has a wide range of growth forms, a major part of which occurs in most biotopes where the species is common. Shows no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Pavona decussata*

(Dana, 1846)

Common on the GBR and the Philippines, uncommon in Vanuatu and much of the Ryukyu Is., rare at the Houtman Abrolhos Is. and Cocos (Keeling) Atoll. Colonies may be submassive if exposed to strong wave action and/or sand abrasion, but form thick, interconnecting, bifacial, upright fronds in most reefal biotopes. All colonies from Ashmore Reef (NW Australia) were from a single lagoonal biotope and had more highly divided fronds than observed elsewhere. Otherwise the wide range of environment-correlated growth forms is repeated in each geographic region. Yellowish-brown in colour at the Ryukyu Is. and Tanegashima, chocolate brown, sometimes with green tentacles at Japan mainland locations. Tentacles are normally extended during the day at mainland locations, but not in the Ryukyu Is.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Fiji.

#### **DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea, The Gulf and E Africa to Samoa.

#### **Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs, S New South Wales.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Hong Kong, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

## *Pavona explanulata*

(Lamarck, 1816)

Seldom common except at some Ryukyu I. locations and Tanegashima. Colonies are encrusting, or are thin unifacial laminae, but are sometimes submassive or columnar. This very wide variation in growth-form, with similar variation in calice structure, is clearly primarily environment- correlated and is repeated throughout the recorded distribution range. Further variation occurs in coralla from isolated locations eg. those from Tanegashima have recognisably smaller corallites than those from the Ryukyu Is. from similarly exposed biotopes.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea, The Gulf and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Izu.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

## *Pavona danai*

Edwards and Haime, 1860

Uncommon throughout the recorded Central Indo-Pacific distribution range. Has not been studied *in situ*, but coralla from Japan and the Philippines have a similar range of variation.

**TAXONOMIC REFERENCES:** Veron (1991a).

**TYPE LOCALITY:** Indonesia

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Japan.

**Central Indo-Pacific latitudinal distribution:**

? , S Papua New Guinea - E Australia: not found.

W Australia: not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Vietnam.

*Pavona frondifera*

(Lamarck, 1816)

Common in the Philippines, generally uncommon at the Ryukyu Is., becoming common at Tanegashima. Restricted to one biotope at Cocos (Keeling) Atoll. Has a similar, wide, range of variation in Japan and the Philippines. In protected biotopes, colonies consist of small, tightly anastomosing plates; more stunted colonies occur in exposed environments. There appears to be little taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron (1991a).

**TYPE LOCALITY:** 'southern seas'.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to Panama.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Singapore, Cocos (Keeling) Atoll, Malaysia, Vietnam, Taiwan.

*Pavona clavus*

(Dana, 1846)

Common on the GBR on some shallow upper reef slopes exposed to currents and, rarely, may be a dominant species. Common on NW Shelf reefs but not observed elsewhere in W Australia. Submassive colonies at Ashmore Reef may be a different species not recorded elsewhere on the west coast. Uncommon to rare in Vanuatu and the Ryukyu Is., but may form large colonies. Colonies are most commonly columnar, but may consist of thin laminar plates, or be submassive. This great range of growth form, together with corresponding corallite variation, is repeated in all geographic regions where it has been studied.

TAXONOMIC REFERENCES: Veron and Pichon (1980), Veron (1986a).

TYPE LOCALITY: Fiji.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to central America.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu, N Papua New Guinea.

*Pavona minuta*

Wells, 1954

Uncommon or rare in all regions where studied except at Cocos (Keeling) Atoll where it is common on most exposed reefs. Growth form varies greatly, primarily according to how entire, or how divided, colonies grow. This appears to be unrelated to environment. Australian colonies are usually composed of parallel lobes or ridges, while Japanese colonies are more columnar (as illustrated, Veron, 1986) and are seldom large. There is also minor variation in corallite structure.

TAXONOMIC REFERENCES: Wells (1954), Veron and Pichon (1980), Veron (1986a).

TYPE LOCALITY: Marshall Is.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** ?E Africa and Gulf of Oman to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Amakusa Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

***Pavona bipartita***

Nemenzo, 1980

Uncommon in the Philippines, rare in the Ryukyu Is. Usually restricted to the same biotopes as *P. minuta*, which it closely resembles. Has not been studied in detail *in situ*.

**TAXONOMIC REFERENCES:** Veron and Hodgson (1989).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Papua New Guinea.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** none.

***Pavona* sp. Philippines**

Known only from a single specimen which is encrusting, with fine corallites separated by meandering ridges.

**TAXONOMIC REFERENCE:** Veron and Hodgson (1989) (as *Pavona* sp. 2), figured, Veron (1990c).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** none.

***Pavona xarifae***

Sheer and Pillai, 1974

Common at Ashmore Reef but not recorded elsewhere from Australia. Forms extensive colonies at Tana I., Vanuatu.

Taxonomic note: This species has been incorrectly called *Pavona diminuta* Veron, 1990, which is a junior synonym of *P. xarifae*.

**TAXONOMIC REFERENCES:** Scheer and Pillai (1974), Veron (1990c, 1991a) (as *P. diminuta*).

**TYPE LOCALITY:** Nicobar Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Nicobar Is. to the Cook Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea.

**W Australia:** Ashmore Reef.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Thailand, Vanuatu.

***Pavona* sp. Cocos (Keeling) Atoll**

Colonies are flat unifacial plates. Corallites are very small, similar to those of *P. bipartita* Nemenzo, but with smaller calice centres and tendency to become sub-placoid.

**TAXONOMIC REFERENCES:** Veron (1990b, 1990c).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Cocos (Keeling) Atoll only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

*Pavona* sp. Vanuatu

A rare species known only from Vanuatu.

TAXONOMIC REFERENCES: Veron (1989), Veron (1990b) (as *Pavona* sp. 2).

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Vanuatu only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Vanuatu.

*Pavona varians*

Verrill, 1864

Probably the most common *Pavona* in most Central Indo-Pacific regions, although it is often cryptic. Flat, encrusting to plate-like colonies frequently exceed 2 m diameter in protected biotopes, including those of high latitude locations. Environment- correlated variation in corallite structure is very great and sometimes this variation is seen in single large colonies which occupy more than one micro-environment.

TAXONOMIC REFERENCES: Veron and Pichon (1980), Veron (1986a).

TYPE LOCALITY: Hawaii.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to central America.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tateyama.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Pavona venosa*

(Ehrenberg, 1834)

Occurs in a wide range of habitats but is uncommon throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Solitary Is.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Pavona maldivensis*

(Gardiner, 1905)

Usually rare or uncommon throughout the recorded Central Indo-Pacific distribution range. Has both columnar and explanate growth forms, in exposed and protected biotopes respectively. Colonies from intermediate biotopes may have both growth forms. Explanate growth forms are much more common in Japan than observed elsewhere. Corallite structures vary greatly, according to growth form, but there is little discernible taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Maldives.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Pitcairn Is. and Panama.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Okinawa Is., Amami Is., Tanegashima.  
**Additional Central Indo-Pacific records:** Thailand, Cocos (Keeling) Atoll,  
Malaysia, Taiwan, Vanuatu.

## *Genus Leptoseris*

Edwards and Haime, 1849

Although most species of *Leptoseris* clearly belong to the one genus, *L. mycetoserooides* and *L. yabei* both have some characters more usually associated with *Pavona* species.

Like *Pavona*, there are few differences between E and W Australian *Leptoseris* except that *L. papyracea* occurs in shallow lagoonal water at Scott Reef, whereas on the GBR it is restricted to lower reef slopes and inter-reefal areas.

Most species are well defined and readily identifiable throughout their geographic ranges. *Leptoseris* is unusually uncommon in Vanuatu.

### *Leptoseris papyracea*

(Dana, 1846)

The full geographic range indicated below requires further study. A probable synonym, *L. panamensis* Durham and Barnard (1952), has been recorded in the far eastern Pacific. Within the recorded Central Indo-Pacific distribution range this is a well-defined species, although it has a wide range of environment-correlated variation. It is usually restricted to deep biotopes where light availability is much reduced. At Vanuatu and Ashmore Reef (the latter only W Australian locality where it has been recorded), it occurs in shallow water exposed to full sunlight. Forms an extensive carpet in a single protected locality at Cocos (Keeling) Atoll.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Dinesen (1980), Veron (1986a).

**TYPE LOCALITY:** Sulu Sea.

#### **DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Madagascar and Amirante Is. to central America.

#### **Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Central GBR.

**W Australia:** Scott Reef.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Cocos (Keeling) Atoll, Vietnam, Indonesia, Malaysia, N Papua New Guinea, Vanuatu.

*Leptoseris amitoriensis*

Veron, 1990

Colonies form extensive stands *in situ* in Amitori Bay, Iriomote I., Yaeyama Is., but the species has not been recorded elsewhere. Is very conspicuous, yet has only been found in deep water at Amitori Bay. It is likely to be restricted to deep water elsewhere.

**TAXONOMIC REFERENCES:** Veron (1990c, 1991a).

**TYPE LOCALITY:** Iriomote I., Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Ryukyu Is. only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Yaeyama Is.

**Additional Central Indo-Pacific records:** none.

*Leptoseris gardineri*

van der Horst, 1921

Uncommon or rare in all locations where studied, but may form extensive monospecific stands in deep or turbid water. Probably has relatively minor environment-correlated variability and shows no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Dinesen (1980), Veron (1986a).

**TYPE LOCALITY:** Indonesia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Maldives Is. and Malaysia to Marshall Is. and Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, N Papua New Guinea, S Papua New Guinea.

*Leptoseris explanata*

Yabe and Sugiyama, 1941

Generally uncommon or rare throughout the recorded Central Indo-Pacific distribution range. In deep or turbid water, colonies have relatively shallow, widely spaced corallites, otherwise there is little taxonomically significant variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Dinesen (1980) (as *L. glabra*), Veron (1986a).

**TYPE LOCALITY:** Palau.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Cocos (Keeling) Atoll, Malaysia, Vietnam, Taiwan, N Papua New Guinea, Vanuatu.

*Leptoseris scabra*

Vaughan, 1907

Occasionally common on walls or under overhangs but generally rare throughout the recorded Central Indo-Pacific distribution range. Calice structure, especially the appearance of the septo-costae, varies greatly according to the size of colonies and degree of exposure to light. No taxonomically significant geographic variation has been observed.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Dinesen (1980), Veron (1986a).

**TYPE LOCALITY:** Hawaii.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Mauritius to Hawaii and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Leptoseris solidia*

(Quelch, 1886)

Rare throughout the recorded Central Indo-Pacific distribution range. Coralla from Japan are similar to those of Western Australia, but this remains a poorly recorded species; not studied *in situ*.

**TAXONOMIC REFERENCE:** Dinesen (1980).

**TYPE LOCALITY:** Tahiti.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Kuwait and Madagascar to Pitcairn Is. and ?Easter I.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima.

**Additional Central Indo-Pacific records:** none.

### *Leptoseris hawaiiensis*

Vaughan, 1907

Less common than *L. scabra* in most regions where studied, but has a similar, wide, distribution range. Also has similar environment-correlated variability without noted taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Dinesen (1980), Veron (1986a).

**TYPE LOCALITY:** Hawaii.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Mascarene Arch. to central America.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Lord Howe I., Solitary Is.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Indonesia, Taiwan, N Papua New Guinea, S Papua New Guinea.

*Leptoseris mycetoseroidea*

Wells, 1954

One of the more common *Leptoseris* except at Vanuatu, where it is rare, and one of the most variable. Occurs in a wide range of habitats including exposed upper reef slopes, under overhangs and in deep water. Environment-correlated variability is correspondingly great, and masks possible taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Wells (1954), Veron and Pichon (1980), Dinesen (1980), Veron (1986a).

**TYPE LOCALITY:** Marshall Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Marshall Is. and Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu, Tateyama.

**Additional Central Indo-Pacific records:** Thailand, Cocos (Keeling) Atoll, Vietnam, Indonesia, Hong Kong, Malaysia, N Papua New Guinea, Vanuatu.

*Leptoseris yabei*

(Pillai and Scheer, 1976)

A distinctive species, sometimes common on tropical reefs. Uncommon in the northern Ryukyu Is. Rare in high latitudes including the Houtman Abrolhos Is. and Tanegashima; also rare at Vanuatu. Coralla from the Ryukyu Is. may be very similar to those from the GBR, but some have less well-defined radiating ridges which are generally characteristic of the species. Coralla from Tanegashima are relatively finely structured.

**TAXONOMIC REFERENCES:** Pillai and Scheer (1976), Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Maldives Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Red Sea and Maldives Is. to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Leptoseris foliosa*

Dinesen, 1980

Uncommon throughout the recorded Central Indo-Pacific distribution range; found only on sheltered vertical or overhung walls. Environment- correlated variation is less than in most other *Leptoseris* species and no taxonomically significant geographic variation has been determined.

Taxonomic note: *Craterastrea levius* Head, is a junior synonym of *Leptoseris foliosa*.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980) (as *L. tenuis*), Dinesen (1980), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Amirante and Providence Is. to Galapagos.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef, Scott Reef, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, N Papua New Guinea, S Papua New Guinea.

*Leptoseris incrustans*

(Quelch, 1886)

Uncommon or rare throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Dinesen (1980).

**TYPE LOCALITY:** Tahiti.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Mozambique to French Polynesia and ?Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, not found.

**W Australia:** Ashmore Reef, Scott Reef, Seringapatam Atoll.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Taiwan, Vanuatu.

## *Genus Gardineroseris*

Scheer and Pillai, 1974

### *Gardineroseris planulata*

(Dana, 1846)

Generally uncommon and shows only minor environment-correlated variation and no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to central America.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Gardineroseris* sp. Thailand

This second species of *Gardineroseris* has been tentatively recorded from Phuket, Thailand.

**TAXONOMIC REFERENCES:** none.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Thailand only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Thailand.

## *Genus Coeloseris*

Vaughan, 1918

### *Coeloseris mayeri*

Vaughan, 1918

Common, especially in Vanuatu and the Yaeyama Is., generally uncommon on the GBR and W Australia. Has a similar range of variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Vaughan (1918), Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?E Africa and Andaman Is. to Vanuatu and ?Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

## *Genus Pachyseris*

Edwards and Haime, 1849

It is likely that only two species, *P. rugosa* and *P. speciosa*, occur in most Indo-Pacific locations. Although both species have wide ranges of growth forms, they are taxonomically distinct. There are no significant differences between E and W Australian *Pachyseris*.

### *Pachyseris rugosa*

(Lamarck, 1801)

Common throughout the recorded Central Indo-Pacific distribution range except in Japan where it is generally uncommon. Occurs over a wide range of environments, from shallow to deep, and has a wide range of environment-correlated growth forms, especially in shallow turbid water, where it may form colonies over 8 m diameter. Possible taxonomically significant geographic variation is masked by this environment-correlated variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** "Southern Ocean"

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Pachyseris speciosa*

(Dana, 1846)

Very common, especially in deep water where (notably at Cocos (Keeling) Atoll, the Houtman Abrolhos Is. and some Ryukyu Is.) it may form monospecific stands. Becomes notably less common in higher latitudes. Rare in Vanuatu. Displays much less variation than *P. rugosa*, but has little or no taxonomically significant geographic variation in locations where studied.

TAXONOMIC REFERENCES: Veron and Pichon (1980), Veron (1986a).

TYPE LOCALITY: "East Indies".

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Red Sea to Kiribati and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract, Dampier Arch., Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Pachyseris gemmae*

Nemenzo, 1955

Common in exposed environments of the Philippines and Japan. This is an ill-defined species, similar to plate-like *P. rugosa*.

TAXONOMIC REFERENCES: Nemenzo (1955), Veron and Hodgson (1989).

TYPE LOCALITY: Philippines.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Philippines to Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand.

*Pachyseris foliosa*

Veron, 1990

Uncommon, recorded only from the Philippines.

**TAXONOMIC REFERENCE:** Veron (1990c, 1991a).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** none.



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10

*Family*  
*Fungiidae*

Dana, 1846

*Cantharellus* Hoeksema and Best, has been recorded in the Central Indo-Pacific only - as *C. noumeae* Hoeksema and Best, 1984.

*Genus Cycloseris*

Edwards and Haime, 1849

Rare throughout Australia (except for *Cycloseris cyclolite*) on the GBR, generally common in the Philippines, rare in Japan, not recorded from Cocos (Keeling) Atoll. Usually found only in non-reefal (including inter-reefal) biotopes.

*Cycloseris cyclolites*

(Lamarck, 1801)

Very common in localised non-reefal areas of the GBR. Rare in Japan. Specimens from Okinawa are similar to those from the Philippines but are larger, more irregular, and have coarser septa than those from the GBR. This trend is greatly extended in mainland locations where there is either a high latitude ecomorph of *cyclolites* or, more likely, a high latitude endemic.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a), Hoeksema (1989) (as *Fungia (Cycloseris) cyclolites*).

**TYPE LOCALITY:** "Southern Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to New Caledonia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef, Kimberley coast, Dampier Arch., Pilbara coast, Shark Bay region.

**Philippines - Japan:** Philippines, Okinawa Is., Amami Is., Amakusa Is., Kushimoto, Shirahama, Izu, Tateyama.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, New Caledonia.

### *Cycloseris sinensis*

Edwards and Haime, 1851

The most common *Cycloseris* in the Motupore I. region of S Papua New Guinea but known in Australia only from Ashmore Reef. Coralla from the Philippines and Japan are very similar but have distinctively higher septa than those from lower latitudes.

**TAXONOMIC REFERENCES:** Hoeksema (1989, as *Fungia (Cycloseris) sinensis*).

**TYPE LOCALITY:** South China Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea.

**W Australia:** Ashmore Reef.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Singapore, Indonesia, Taiwan, N Papua New Guinea, S Papua New Guinea.

### *Cycloseris hexagonalis*

(Edwards and Haime, 1848)

Rare, and little studied, throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Hoeksema (1989, as *Fungia (Cycloseris) hexagonalis*) Figs. 123 and 124 only).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** SE India to ?Hawaii.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Indonesia, N Papua New Guinea.

*Cycloseris curvata*

(Hoeksema, 1989)

This is a very widespread species yet is generally rare throughout the recorded Central Indo-Pacific distribution range. It is found along the northern Australian and southern Papua New Guinea coasts, where it may be common in restricted areas between reefs or in sandy lagoons.

Taxonomic note: this is a new name for *C. elegans* Verrill.

**TAXONOMIC REFERENCES:** Hoeksema (1989) (as *Fungia (Cycloseris) curvata*).

**TYPE LOCALITY:** Gulf of California.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia to central America.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Solitary Is.

W Australia: Rowley Shoals.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Indonesia, N Papua New Guinea.

*Cycloseris costulata*

(Ortmann, 1889)

Seldom seen except in some deep lagoons where it may be locally abundant. Rare in the Ryukyu Is. except for a single site.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Sri Lanka.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Red Sea and E Africa to Bismark Arch.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait,

N GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and

Middleton Reefs, S coastal New South Wales.

**W Australia:** NW Shelf Reefs.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, S Papua New Guinea.

*Cycloseris erosa*

(Döderlein, 1901)

Rare and little studied.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Red Sea and Indonesia to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Central GBR,

Pompey and Swain Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Malaysia, S Papua New Guinea.

*Cycloseris somervillei*

(Gardiner, 1909)

A rare but distinctive species. Recorded from Miyake I. (S of Tokyo), but not from the Ryukyu Is. or mainland Japan.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a), Hoeksema (1989) (as *Fungia (Cycloseris) somervillei*).

**TYPE LOCALITY:** Seychelles Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Kuwait, ?E Africa and Seychelles Is. to Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait,

N GBR

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Indonesia, N Papua New Guinea,  
S Papua New Guinea.

*Cycloseris* sp. Philippines

Rare in the Philippines, recorded in Japan from a single specimen.

**TAXONOMIC REFERENCE:** Veron and Hodgson (1989) (as *Cycloseris* sp. 2).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Tanegashima.

**Additional Central Indo-Pacific records:** none.

*Cycloseris patelliformis*

(Boschma, 1923)

Rare in Australia and Japan. Coralla from the Ryukyu Is. are similar to those from the Philippines; those from Tanegashima and the Shirahama (Tanabe Bay) are attributed to this species with doubt.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Indonesia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Seychelles Is. to Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, N and Central GBR, Coral Sea, Capricorn and Bunker Reefs.

**W Australia:** Dampier Arch., Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima, Shirahama.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Vanuatu.

*Cycloseris vaughani*

(Boschma, 1923)

Rare in Australia and Japan where only four specimens have been observed. A single specimen from the Amakusa Is. is lightly calcified and is identified as this species with doubt.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a), Hoeksema (1989) (as *Fungia (Cycloseris) vaughani*).

**TYPE LOCALITY:** Hawaii.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Saudi Arabia and Madagascar to Hawaii and Easter I.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Amakusa Is.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, S Papua New Guinea.

*Cycloseris tenuis*

(Boschma, 1923)

Rare throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a) (as *Cycloseris marginata*), Hoeksema (1989) (as *Fungia (Cycloseris) tenuis*).

**TYPE LOCALITY:** Indonesia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Red Sea and Chagos to Hawaii.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Central GBR.

**W Australia:** Ashmore Reef.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Thailand, Singapore.

## *Genus Diaseris*

Edwards and Haime, 1849

*Diaseris* typically occurs in isolated pockets of non-reefal habitats. They have a distinctive mode of asexual reproduction by autotomy. As with *Cycloseris*, the rarity of *Diaseris* makes it likely that present records are incomplete. Species differences are always clear in any given region but environment-correlated variation may mask inter-regional species recognition.

### *Diaseris distorta*

(Michelin, 1843)

Very common in some inter-reefal areas of the GBR, rare in W Australia and the Ryukyu Is., except in some isolated biotopes.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

#### **DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to central America.

#### **Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** N and Central GBR, Capricorn and Bunker Reef.

**W Australia:** Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, N Papua New Guinea.

### *Diaseris fragilis*

Alcock, 1893

Seldom found in Australia and occurs only on soft substrates in deep water or in turbid lagoons, but may be abundant in such areas. Recorded only from the Yaeyama Is. of Japan at approximately 40m depth, a record attributed to this species with doubt. Recorded in a subtidal sea grass bed in Cebu, Philippines, where autotomy was so frequent that individuals were reduced to the size of pebbles which almost covered the substrate.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Andaman Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Mozambique and Seychelles to E Australia and ?Hawaii.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** N and Central GBR, Pompey and Swain Reefs.

**W Australia:** Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea.

## *Genus Heliofungia*

Wells, 1966

### *Heliofungia actiniformis*

(Quoy and Gaimard, 1833)

Very common on the GBR and NW Shelf reefs of Australia, especially in lagoons. Usually uncommon in Vanuatu and Japan where it is restricted to protected biotopes. Has a similar range of variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a), Hoeksema (1989).

**TYPE LOCALITY:** New Ireland.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Thailand to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef, Scott Reef, Kimberley coast.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Indonesia, N Papua New Guinea, Vanuatu.

## *Genus Fungia*

Lamarck, 1801

Of all major genera, *Fungia* is the most restricted to tropical waters. In E Australia, only *F. scutaria* is abundant in higher latitudes (Elizabeth and Middleton Reefs). On the W coast, only a single specimen (of *F. repanda*) has been recorded from the Houtman Abrolhos Islands. There are usually few, if any, differences between coralla from the two Australian coasts.

*Fungia* are very common throughout the Ryukyu Is. and show little taxonomically significant geographic variation within this range. There appears to be little variation in relative abundance within the three major groups of the Ryukyu Is., yet only one species, *F. scutaria*, has been recorded further north (at Tanegashima) by Veron (1991).

The genus is usually divided into subgenera following Well's (1966) revision although these have no more taxonomic significance than subgenera of other major genera. Species generally show little geographic- or environment-correlated variation, partly because they are not colonial, but also because they seldom occur on exposed reef fronts or in high latitude, non-reefal localities, both of which are common environmental extremes for other corals.

### *Fungia fungites*

(Linnaeus, 1758)

Very common throughout the recorded Central Indo-Pacific distribution range except at Cocos (Keeling) Atoll where it is uncommon. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a), Hoeksema (1989).

**TYPE LOCALITY:** Red Sea.

#### **DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to French Polynesia.

#### **Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Fungia scruposa*

Klunzinger, 1879

Rare on the GBR and W Australia, generally common in the Ryukyu Is. over a wide range of biotopes. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a), Hoeksema (1989).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to ?E Australia and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** Ashmore Reef, Scott Reef, Dampier Arch.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea.

*Fungia horrida*

Dana, 1846

Generally uncommon or rare throughout the recorded Central Indo-Pacific distribution range. Coralla show no taxonomically significant variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a), Hoeksema (1989).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** NW Shelf Reefs.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu, N Papua New Guinea.

*Fungia danai*

(Edwards and Haime, 1851)

Common throughout the recorded Central Indo-Pacific distribution range where coralla seldom show any taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Madagascar and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Singapore, Vietnam, Malaysia, Vanuatu.

*Fungia corona*

Döderlein, 1901

Rare and little studied.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Singapore.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Singapore, Malaysia, Vietnam.

*Fungia fralinae*

Nemenzo, 1955

Rare, geographic variation has not been studied.

**TAXONOMIC REFERENCES:** Nemenzo (1955), Veron and Hodgson (1989), Hoeksema (1989).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia to Papua New Guinea.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Indonesia, N Papua New Guinea.

*Fungia valida*

Verrill, 1864

Common at Ashmore Reef but has not been recorded elsewhere on the W Australian coast. Rare in Vanuatu, probably rare in Japan. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Zanzibar.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Vanuatu and  
?Phoenix Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait,  
N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef.

**Philippines - Japan:** Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Vanuatu.

*Fungia klunzingeri*

Döderlein, 1901

Generally uncommon or rare and shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR.

**W Australia:** Ashmore Reef, Rowley Shoals.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Singapore, Vietnam, Vanuatu.

*Fungia repanda*

Dana, 1846

Common throughout the Australian distribution range except for the Houtman Abrolhos Is. where only a single specimen has been observed. This is the only record of *Fungia* at the Houtman Abrolhos Is. Very common in the Ryukyu Is. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a), Hoeksema (1989).

**TYPE LOCALITY:** "East Indies" and Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Fungia concinna*

Verrill, 1864

Very common in Vanuatu and the Ryukyu Is. Shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a), Hoeksema (1989).

**TYPE LOCALITY:** Zanzibar.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** Ashmore Reef, Scott Reef, Kimberley coast, Dampier Arch., Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

**Additional countries:** not found.

*Fungia scabra*

Döderlein, 1901

Rare on the GBR, uncommon in the Ryukyu Is. and not studied in detail. Coralla are similar in these localities.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** "East Indies".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Seychelles to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Singapore, Malaysia, Vietnam, Indonesia, N Papua New Guinea, S Papua New Guinea.

*Fungia granulosa*

Klunzinger, 1879

Generally common, shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a), Hoeksema (1989).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Fungia spinifer*

Claereboudt and Hoeksema, 1987

Rare, geographic variation has not been studied.

**TAXONOMIC REFERENCES:** Claereboudt and Hoeksema (1987), Hoeksema (1989).

**TYPE LOCALITY:** Indonesia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia to N Papua New Guinea.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Okinawa Is.

**Additional Central Indo-Pacific records:** Indonesia, N Papua New Guinea.

*Fungia* sp. Philippines

Rare, geographic variation has not been studied.

TAXONOMIC REFERENCE: Veron and Hodgson (1989).

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Philippines only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines.

**Additional Central Indo-Pacific records:** none.

*Fungia scutaria*

Lamarck, 1801

Generally common throughout the recorded Central Indo-Pacific distribution range, occurring in higher latitudes than other *Fungia* species in E and W Australia and Japan; common at Elizabeth and Middleton Reef (E Australia), rare at Tanegashima (Japan). Unlike other *Fungia*, this species is sometimes found in moderately exposed environments. Coralla show no taxonomically significant geographic variation. Commonly bright green in the Ryukyu Is.; uniform pale brown at Tanegashima, cream with blue or white tentacular lobes, occasionally pink, at Cocos (Keeling) Atoll.

TAXONOMIC REFERENCES: Veron and Pichon (1980), Veron (1986a), Hoeksema (1989).

TYPE LOCALITY: "Indian Ocean".

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Red Sea and SE Africa to Hawaii and Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

W Australia: NW Shelf Reefs, Ningaloo Reef Tract.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Fungia paumotensis*

Stutchbury, 1833

Generally common and shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a), Hoeksema (1989).

**TYPE LOCALITY:** Paumotu Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Madagascar to Hawaii and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Fungia moluccensis*

van der Horst, 1919

Generally uncommon in Australia, sometimes common in the Ryukyu Is. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Indonesia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Vietnam, Indonesia, Taiwan, N Papua New Guinea, S Papua New Guinea.

## *Fungia* sp. Vanuatu

Rare, geographic variation has not been studied.

TAXONOMIC REFERENCE: Veron (1990a) (as *Fungia (Verrilliofungia)* sp.).

### DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Vanuatu only.

### **Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

## *Genus Ctenactis*

Verrill, 1864

Taxonomic note: This genus was formally considered a subgenus of *Fungia* by the author and his colleagues.

## *Ctenactis echinata*

(Pallas, 1766)

Common and shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

TAXONOMIC REFERENCES: Veron and Pichon (1980), Veron (1986a) (as *Fungia (Ctenactis) echinata*), Hoeksema (1989).

TYPE LOCALITY: "Indian Ocean".

### DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Red Sea to Samoa.

### **Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** Ashmore Reef, Scott Reef, Kimberley coast, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Ctenactis crassa*

(Dana, 1846)

Uncommon or rare and shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

Taxonomic note: This species has previously been called *Herpetoglossa simplex* and *Fungia (Ctenactis) simplex* by the author and his colleagues.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a) (as *Herpetoglossa simplex*), Hoeksema (1989).

**TYPE LOCALITY:** Maldives.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Fiji.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: Torres Strait, N and Central GBR, Pompey and Swain Reefs.

W Australia: NW Shelf Reefs, Kimberley Coast, Dampier and Ningaloo.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Taiwan, Vanuatu, N Papua New Guinea.

### *Genus Herpolitha*

Eschscholtz, 1825

### *Herpolitha limax*

(Esper, 1797)

Generally common and shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range except at Cocos (Keeling) Atoll where it is rare.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a), Hoeksema (1989).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Herpolitha weberi*

(van der Horst, 1921)

Generally rare throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** van der Horst (1921), Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Indonesia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Maldives Is. to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Central GBR

**W Australia:** Rowley Shoals, Kimberley coast.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, N Papua New Guinea, S Papua New Guinea.

*Genus Polyphyllia*

Quoy and Gaimard, 1833

Taxonomic note: Lamberts (1984) presents a plausible case for dividing *Polyphyllia* into two monospecific genera, *Polyphyllia* and *Lithactinia*, on both morphological and biogeographic grounds. This division would be more useful if either genus had a second species.

## *Polyphyllia talpina*

(Lamarck, 1801)

Generally common in E and W Australia, uncommon in the Ryukyu Is. Coralla show no taxonomically significant geographic variation, neither are there colour variations or variations of colonies *in situ*, which have tentacles extended day and night.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a), Hoeksema (1989).

**TYPE LOCALITY:** "East Indies".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Madagascar to Fiji and Tonga.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, S Papua New Guinea.

## *Polyphyllia novaehiberniae*

Lesson, 1831

This is a well-defined species with an anomalous distribution: it is common from N Papua New Guinea to Samoa, does not occur in the central western Pacific or the Indian Ocean except Kenya, where it is known from a single specimen.

**TAXONOMIC REFERENCES:** Lamberts (1984) (as *Lithactinia novaehiberniae*), Hoeksema (1989).

**TYPE LOCALITY:** New Ireland.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Kenya and Papua New Guinea to Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Vanuatu, N Papua New Guinea.

## *Genus Halomitra*

Dana, 1846

### *Halomitra pileus*

(Linnaeus, 1758)

Rare in the Ryukyu Is., uncommon in Vanuatu. Shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

TAXONOMIC REFERENCES: Veron and Pichon (1980), Veron (1986a), Hoeksema (1989).

TYPE LOCALITY: "East Indies".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to Kiribati.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

## *Sandalolitha*

Quelch, 1884

A second species of *Sandalolitha*, *S. dentata* Quelch, 1886, is probably a valid species of the south Pacific, but its wider distribution is uncertain.

### *Sandalolitha robusta*

(Quelch, 1886)

Generally common and shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range except at Cocos (Keeling) Atoll where small colonies are oval, larger ones are contorted according to irregularities in the substrate. The flattened, irregular appearance combined with wide corallum margins free of centres, suggests a different species from that found in Australia. There are, however, no skeletal details which reliably distinguish Cocos (Keeling) Atoll coralla from those from Australia and these are best regarded as geographic subspecies.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Indonesia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Andaman Is. to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

## *Genus Zoopilus*

Dana, 1846

A well-defined monospecific genus.

### *Zoopilus echinatus*

Dana, 1846

Uncommon except in some isolated deep-water biotopes. The distribution range is unusual in that it excludes Australia and the Coral Sea, yet extends S to Vanuatu and Fiji and N to the Yaeyama Is. of Japan.

**TAXONOMIC REFERENCES:** Veron (1986a), Hoeksema (1989).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia to Marshall Is. and Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Malaysia, Indonesia, N Papua New Guinea, Vanuatu.

## *Genus Lithophyllum*

Rehberg, 1892

Hoeksema (1989) records two species of *Lithophyllum* in total, as concluded by Veron (1986). One species occurs on the GBR: *L. mokai* Hoeksema, a new name for the *L. cf. edwardsi* of Veron and Pichon (1980) and subsequent uses of that name by this author from Australian locations, but not Japan. *Lithophyllum undulatum sensu* Hoeksema, occurs Ashmore Reef, NW Australia but has not, to this authors knowledge, been found on the GBR. There are probably no species of *Lithophyllum* in common between the GBR and Japan.

### *Lithophyllum undulatum*

Rehberg, 1892

Uncommon, but forms large, conspicuous colonies in high latitude, non-reefal localities of Japan.

**TAXONOMIC REFERENCES:** Veron (1986a, p. 358, fig. 1), Hoeksema (1989, figs. 570, 571).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Japan.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: Ashmore Reef.

**Philippines - Japan:** Philippines, Yaeyama Is. Okinawa Is., Tanegashima, Tosashimizu, Amakusa Is., Shirahama, Kushimoto.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea.

### *Lithophyllum mokai*

Hoeksema, 1989

Uncommon and shows no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980) (as *L. cf. edwardsi*), Hoeksema (1989).

**TYPE LOCALITY:** Indonesia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Andaman Is. to Vanuatu and ?Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR.

**W Australia:** Ashmore Reef, Scott Reef, Dampier Arch., Pilbara coast, Ningaloo Reef Tract.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Lithophyllum lobata*

van der Horst, 1921

Rare throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** van der Horst (1921), Veron and Hodgson (1989), Hoeksema (1989, figs. 567, 568, as *Lithophyllum undulatum*).

**TYPE LOCALITY:** Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Indonesia, S Papua New Guinea.

*Lithophyllum levistei*

Nemenzo, 1971

Rare, presumed to be endemic to the Philippines and Vietnam.

**TAXONOMIC REFERENCES:** Nemenzo (1971).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Vietnam to Philippines.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines.

Additional Central Indo-Pacific records: Vietnam.

## *Genus Podabacia*

Edwards and Haime, 1849

### *Podabacia crustacea*

(Pallas, 1766)

Common in E and W Australian, uncommon in the Philippines and Ryukyu Is. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a), Hoeksema (1989).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

W Australia: NW Shelf Reefs, Kimberley coast, Dampier Arch., Ningaloo Reef Tract.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is.

Additional Central Indo-Pacific records: Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Podabacia motuporensis*

Veron, 1990

Rare over the recorded distribution range except at Vanuatu where it is generally common.

**TAXONOMIC REFERENCES:** Veron (1990c).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Vanuatu.



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*Family*  
*Oculinidae*

Gray, 1847

Contains three hermatypic genera, *Galaxea*, *Acrhelia*, and *Simplastrea* from the Indo-Pacific. The first two genera are common and widespread, the last is known only from the holotype of *S. vesicularis* Umbgrove, 1939, which appears to be a distinct species.

***Genus Galaxea***  
Oken, 1815

The total number of *Galaxea* species is unrecorded but there appear to be at least four in the Central Indo-Pacific, three of which have been studied by the author and a fourth, recorded from N Papua New Guinea. The variability of *G. fascicularis*, however, may well mask the presence of other similar but less abundant species. Species identities of the eastern distribution range of the genus have not been determined.

***Galaxea astreata***  
(Lamarck, 1816)

Common in most Central Indo-Pacific locations. Rare in the Okinawa Is. and not found in sub-tropical Australian locations. Colonies may be tiered, encrusting, columnar or pillow-like, depending partly on exposure to wave action. Columnar growth forms are more common on the W Australian coast than on the GBR. This species shows little of the great variation of *G. fascicularis* and there is little or no taxonomically significant geographic variation in either growth form or corallite structure.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** "Indian Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to ?Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea,

Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Galaxea fascicularis*

(Linnaeus, 1767)

Common throughout the recorded Central Indo-Pacific distribution range. Has a very wide range of environment-correlated variation and may also vary greatly within the same uniform biotope. Forms very large colonies, including some of the largest of all Scleractinia, in turbid, protected water. Small colonies growing on mud substrates have been described as separate species because they often develop very elongate, phaceloid corallites. Such corallites may also occur in colonies from reefal habitats, where they may be induced by boring organisms. Environment-correlated variation, therefore, takes several forms, which completely masks both geographic variation and the possible presence of sibling species.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** GBR.

#### **DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to ?French Polynesia

#### **Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

## *Galaxea alta*

Nemenzo, 1979

Sometimes common in the Philippines. Primarily characterised by very large, exsert, tubular corallites and numerous highly compacted septa. Difficult to distinguish from *G. fascicularis* unless both species occur together.

**TAXONOMIC REFERENCE:** Nemenzo (1979).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** none.

## *Genus Acrhelia*

Edwards and Haime, 1849

This genus, from the Central Indo-Pacific, is monospecific.

### *Acrhelia horrescens*

(Dana, 1846)

This is one of the most habitat-restricted of all reef corals of Australia where it occurs only in clear reef waters and is virtually never found on fringing reefs. It occurs only on off-shore (NW Shelf) reefs of W Australia and only on the southern-most (Yaeyama) reefs of the Ryukyu Is., where it is generally uncommon. In Vanuatu, the Philippines and the Ryukyu Is., colonies frequently occur in turbid environments where they have lax growth forms.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia and W Australia to Gilbert Is. and Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Malaysia, Indonesia, N Papua New Guinea, Vanuatu.

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*Family*  
*Pectiniidae*

Vaughan and Wells, 1947

***Genus Echinophyllia***

Klunzinger, 1879

Except for plate-like *E. orpheensis* at the Houtman Abrolhos Islands, there is little difference between the *Echinophyllia* of the GBR and the W Australian coast.

***Echinophyllia aspera***

(Ellis and Solander, 1786)

Generally common in a wide range of habitats throughout the recorded Central Indo-Pacific distribution range. Is especially common in high latitudes, notably Tanegashima and the Amakusa Is., but is uncommon at Shirahama and Kushimoto. Has a similar range of corallite variation throughout its range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** "Eastern Indian Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe Is., Solitary Is.

**W Australia:** Ashmore Reef, Scott Reef, Dampier Arch., Pilbara coast, Ningaloo Reefs, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu, Tateyama.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

### *Echinophyllia orpheensis*

Veron and Pichon, 1980

Generally uncommon throughout the recorded distribution range. Colonies attributed to this species with doubt form explanate plates at the Houtman Abrolhos Is. with outwardly inclined corallites.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia and W Australia to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf reefs, Pilbara coast, Dampier Arch., Ningaloo Reefs, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Malaysia, Vietnam, Indonesia.

### *Echinophyllia echinata*

(Saville-Kent, 1871)

Recorded only from Ashmore Reef on the W Australian coast where it is unusually common. Generally uncommon elsewhere in the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Solomon Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Saudi Arabia and Maldives Is. to Solomon Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: Coral Sea, Torres Strait, N GBR.

W Australia: Ashmore Reef.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is.,  
Tosashimizu, Amakusa Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia,  
N Papua New Guinea.

*Echinophyllia nishihirai*

Veron, 1990

Rare, but very conspicuous. Coralla have a very large central corallite with a compact, circular or elongate columella up to 20mm diameter. Septo-costae radiate from the central corallite to the corallum perimeter. Secondary corallites are rare. Geographic range and environment-correlated variation are both unrecorded.

**TAXONOMIC REFERENCES:** Veron (1990c, 1991a).

**TYPE LOCALITY:** Ryukyu Is., Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Japan only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Yaeyama Is., Okinawa Is., Tosashimizu.

**Additional Central Indo-Pacific records:** none.

*Echinophyllia echinoporoides*

Veron and Pichon, 1980

Rare throughout the recorded Central Indo-Pacific distribution range except, in the Ryukyu Is., in some protected biotopes. Has a similar range of variation in the Philippines and Ryukyu Is. In the Ryukyu Is. it is mostly rust red in colour, often with green or white calices, occasionally grey with green or red calices.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Vietnam, N Papua New Guinea, Malaysia, Indonesia.

*Echinophyllia patula*

(Hodgson and Ross, 1982)

Rare, except at Tanegashima where it has the same grey-green colour and appearance as Philippines colonies.

**TAXONOMIC REFERENCES:** Hodgson and Ross (1982).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Thailand to Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima.

**Additional Central Indo-Pacific records:** Thailand.

*Genus Oxypora*

Saville-Kent, 1871

*Oxypora crassispinosa*

Nemenzo, 1979

Common on steeply sloping substrates of the Philippines.

**TAXONOMIC REFERENCES:** Nemenzo (1979).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** none.

*Oxypora lacera*

(Verrill, 1864)

Common in E and W Australia and in the Ryukyu Is. N to Tanegashima, uncommon in mainland Japan and Cocos (Keeling) Atoll. Has a similar range of variation throughout the recorded Central Indo-Pacific distribution range. Colonies are usually pale grey or brown in the Ryukyu Is., or yellowish-brown to creamy grey at Tanegashima or bright green (sometimes red) at mainland locations.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Singapore.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Marshall and Loyalty Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf reefs, Dampier Arch., Pilbara coast, Ningaloo Reefs, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** Thailand, Cocos (Keeling) Atoll, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Oxypora glabra*

Nemenzo, 1959

Much more abundant on the W than E Australian coasts where colonies tend to form thin plates similar to those of *O. lacera* and distinctions between these species are not as clear as they are in other geographic regions including the GBR and the Philippines. Generally uncommon elsewhere in the recorded distribution range. Coralla from the GBR, the Philippines and the Ryukyu Is. have a similar range of variation.

TAXONOMIC REFERENCES: Veron and Pichon (1980), Veron (1986a).

TYPE LOCALITY: Philippines.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Malaysia to New Caledonia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf reefs, Ningaloo Reefs, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Malaysia, Taiwan, New Caledonia.

## *Genus Mycedium*

Oken, 1815

### *Mycedium elephantotus*

(Pallas, 1766)

Common in E and W Australia, the Ryukyu Is. and Kushimoto, where it has a very wide colour range; uncommon at Tanegashima and other mainland localities of Japan where it is dark coloured, predominantly green. Has a wide variation in corallite structure throughout the recorded Central Indo-Pacific distribution range.

TAXONOMIC REFERENCES: Veron and Pichon (1980), Veron (1986a).

TYPE LOCALITY: "Indian Ocean".

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Moreton Bay, Lord Howe Is.

**W Australia:** NW Shelf reefs, Dampier Arch., Pilbara coast, Ningaloo Reefs, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

## *Mycedium robokaki*

Moll and Borel Best, 1984

Generally uncommon in Vanuatu, rare and in Australia and Japan (recorded only from Ashmore Reef and Ishigaki I., respectively).

**TAXONOMIC REFERENCES:** Moll and Borel Best (1984).

**TYPE LOCALITY:** Indonesia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea.

**W Australia:** Ashmore Reef.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Indonesia, Vanuatu.

## *Genus Physophyllia*

Duncan, 1884

This is a poorly defined genus with one species.

### *Physophyllia ayleni*

Wells, 1934

Rare throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCE:** Veron (1986a).

**TYPE LOCALITY:** Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** Kimberly Coast (new record).

**Philippines - Japan:** Philippines, Yaeyama Is., Tosashimizu, Amakusa Is.,

Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** none.

## *Genus Pectinia*

Oken 1815

Although the species of this genus have been very confused historically, they are usually reliably identified *in situ* and, except for some *P. teres*, from coralla.

### *Pectinia lactuca*

(Pallas, 1766)

Common in Vanuatu and E and W Australia, generally uncommon in Japan. Coralla show no taxonomically significant geographic variation, and are always blue-grey in colour throughout the recorded Indo-west distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR.

**W Australia:** NW Shelf reefs, Dampier Arch., Ningaloo Reefs.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tosashimizu, Amami Is., Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

### *Pectinia paeonia*

(Dana, 1846)

Common in Vanuatu and E and W Australia, uncommon in Japan. Coralla show no taxonomically significant geographic variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Sri Lanka to Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef, Scott Reef, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reefs.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

*Pectinia alcicornis*

(Saville-Kent, 1871)

Occurs only on NW Shelf reefs of W Australia. Uncommon in Vanuatu and Japan. Usually found in partly protected biotopes but sometimes found on partly exposed upper reef slopes. Has a similar range of variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Solomon Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Maldives Is. to Vanuatu and ?Solomon Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef, Scott Reef.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Vanuatu.

*Pectinia teres*

Nemenzo, 1981

Rare throughout the recorded distribution range where it is usually restricted to lower reef slopes. Restricted to the NW Shelf reefs of W Australia where colonies shown no taxonomically significant differences from those of the Philippines.

**TAXONOMIC REFERENCES:** Nemenzo (1981), Veron (1986a).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Thailand to Papua New Guinea.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: NW Shelf reefs.

Philippines - Japan: Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Thailand, N Papua New Guinea.

*Pectinia elongata*

Rehberg, 1892

A rare distinctive species, probably restricted to equatorial regions and occupying soft substrates in protected environments.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980, fig. 605).

**TYPE LOCALITY:** Palau.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia to Papua New Guinea.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea.

W Australia: not found.

Philippines - Japan: not found.

**Additional Central Indo-Pacific records:** N and E Papua New Guinea, Malaysia, Indonesia.

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*Family*  
*Mussidae*

Ortmann, 1890

*Indophyllia* Gerth, 1921 was known only as a fossil genus until an extant species, *I. macassarensis* Borel Best and Hoeksema, 1987 was described from Indonesia. It is solitary, like *Scolymia*, but adults are free-living. It has not been found by the author and may be endemic to the Indonesian region.

This family includes both high latitude endemic species and subspecies and other species which have marked latitudinal variation in abundance in both the N and S hemispheres.

***Genus Blastomussa***

Wells, 1961

Except for the rare occurrence of *B. merleti* at the Dampier Archipelago, this genus has been found in W Australia only at the Houtman Abrolhos Is.

***Blastomussa merleti***

(Wells, 1961)

Uncommon in Australia, very rare in Japan. Usually green centered in W Australia, may be red, green or brownish colour in Japan. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** New Caledonia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Madagascar to New Caledonia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait,

N and Central GBR, Capricorn and Bunker Reefs, Solitary Is.

**W Australia:** Dampier Arch., Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Malaysia, Indonesia, New Caledonia.

*Blastomussa wellsi*

Wijsman-Best, 1973

Rare throughout the recorded Central Indo-Pacific distribution range. Usually phaceloid, becoming sub-plocoid in higher latitudes (including the Houtman Abrolhos Is. of W Australia) and may be completely cerioid in mainland Japan. Generally greenish or red throughout the recorded distribution range.

TAXONOMIC REFERENCES: Veron and Pichon (1980), Veron (1986a).

TYPE LOCALITY: New Caledonia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Red Sea and Philippines to New Caledonia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Elizabeth and Middleton Reefs.

W Australia: Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Tateyama.

**Additional Central Indo-Pacific records:** Vietnam, Malaysia, New Caledonia, Vanuatu.

*Genus Cynarina*

Brüggemann, 1877

*Cynarina lacrymalis*

(Edwards and Haime, 1848)

Seldom common on the GBR, very rare in Japan. Although this is a very distinctive species, three specimens only were observed at Tanegashima, two at Shirahama, and none were found *in situ* at Kushimoto.

TAXONOMIC REFERENCES: Veron and Pichon (1980), Veron (1986a).

TYPE LOCALITY: Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Kermadec Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** Kimberley coast (new record).

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia.

## *Genus Scolymia*

Haime, 1852

### *Scolymia vitiensis*

Brüggemann, 1877

Uncommon in Vanuatu.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?E Africa and Philippines to Fiji and ?Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

*Scolymia australis*

(Edwards and Haime, 1849)

Primarily found along the southern coastline of Australia, a distribution similar to that of *Coscinaraea mcneilli*. It is usually uncommon within this range and rare in the S GBR. Has also been found in Japan, but not in the Ryukyu Is. or the mainland.

TAXONOMIC REFERENCES: Veron and Pichon (1980), Veron (1986a).

TYPE LOCALITY: Port Lincoln (S Australia).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe Is., Solitary Is., coastal locations S to Victoria thence W to W Australia.

**W Australia:** SW coastal locations S to Point d'Entrecasteaux, thence E to E Australia.

**Philippines - Japan:** Miyake and Ogasawara Is.

Additional Central Indo-Pacific records: none.

*Genus Australomussa*

Veron, 1985

*Australomussa rowleyensis*

Veron, 1985

Rare in W Australia except for restricted biotopes of N Legendre I., Dampier Archipelago. Colonies are small, flat, dark green and grey at Rowley Shoals and large, dome-shaped and medium grey at Dampier Archipelago. Very common in W Thailand, rare in Japan and recorded in the Okinawa Is. from a single laboratory specimen.

TAXONOMIC REFERENCE: Veron (1986a).

TYPE LOCALITY: Rowley Shoals (W Australia).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Andaman Is. to Japan.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: NW Shelf reefs, Dampier Arch., Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Indonesia, N Papua New Guinea.

## *Genus Acanthastrea*

Edwards and Haime, 1848

Several species (*A. hillae*, *A. bowerbanki*, *A. lordhowensis* and possibly *A. amakusensis*) are much more common in high latitude non-reefal localities than in the tropics. *Acanthastrea echinata* is the only widespread common species of the genus.

### *Acanthastrea echinata*

(Dana, 1846)

Generally common throughout the recorded Central Indo-Pacific distribution range, especially on exposed upper reef slopes. Less common in higher latitudes. Colonies show no taxonomically significant variation throughout this range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea, The Gulf and E Africa to Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton reefs.

W Australia: NW Shelf reefs, Dampier Arch., Pilbara coast, Ningaloo Reefs, Shark Bay region, Houtman Abrolhos Is.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Tateyama.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

*Acanthastrea rotundoflora*

Chevalier, 1975

Rare in Japan. Colonies from Japan, the Philippines and Vanuatu have a similar appearance *in situ*.

**TAXONOMIC REFERENCES:** Chevalier (1975).

**TYPE LOCALITY:** New Caledonia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to New Caledonia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** New Caledonia.

*Acanthastrea hillae*

Wells, 1955

Uncommon or rare in Vanuatu and tropical E Australia and in W Australia except at the Houtman Abrolhos Is. Has a wide range of colours in the E, but little colour variation in the W where most colonies are creamy green or brown. Rare in Japan, especially in the Ryukyu Is., where colonies are mostly grey, brown or mottled green in colour. At Tanegashima and mainland Japan, colonies are also commonly red. Coralla from W Australia usually have relatively coarse skeletal structures, with a tendency to become sub-meandroid.

**TAXONOMIC REFERENCES:** Wells (1955), Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Moreton Bay (E Australia).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Mozambique and The Gulf and W Australia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe Is., Solitary Is., N coastal New South Wales.

**W Australia:** Ningaloo Reefs, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Acanthastrea bowerbanki*

Edwards and Haime, 1857

Rare throughout the tropics and recorded from a single W Australian locality. Living colonies do not have the fleshy appearance of other *Acanthastrea* species. Coralla from the GBR and the Ryukyu Is. show no taxonomically significant differences.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** "Australia".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Reunion and Rodriguez I. to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe Is.

**W Australia:** Ashmore Reef.

**Philippines - Japan:** Yaeyama Is., Okinawa Is., Amakusa Is., Tosashimizu.

**Additional Central Indo-Pacific records:** Malaysia, Hong Kong, Indonesia, Vanuatu.

### *Acanthastrea hemprichii*

(Ehrenberg, 1834).

Generally uncommon, but may form conspicuous orange-yellow colonies over 1m diameter in the Ryukyu Is. and uniform brownish-grey to dark green or red colonies at mainland locations. Coralla from the Philippines and Japan show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Yabe *et al.* (1936).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Japan.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** none.

*Acanthastrea lordhowensis*

Veron and Pichon, 1982

Not recorded on the GBR and generally uncommon elsewhere in Australia, very rare in Japan except in higher latitudes. Coralla show no taxonomically significant geographic variation and have a very wide range of bright colours throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Lord Howe I. (E Australia).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?E Africa and Hong Kong to E Australia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe Is., N New South Wales.

W Australia: Dampier Arch.

Philippines - Japan: Philippines, Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Izu.

**Additional Central Indo-Pacific records:** S Papua New Guinea.

*Acanthastrea amakusensis*

Veron, 1990

Rare throughout the recorded Indo-Pacific distribution range where colonies are fleshy and brightly coloured, green or red.

**TAXONOMIC REFERENCES:** Veron (1990c, 1991a).

**TYPE LOCALITY:** Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Central GBR (not previously recorded).

**W Australia:** not found.

**Philippines - Japan:** Yaeyama Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** Vanuatu.

***Acanthastrea ishigakiensis***

Veron, 1990

Coralla from Vanuatu and the Cook Is. have more widely spaced, more strongly dentate septa than those from the Philippines and Japan. Coralla from Vanuatu and one from the Cook Is. have well developed ambulacral grooves between corallites and some septa are greatly thickened towards the corallite walls. Coralla from the Philippines have fine ambulacral ridges between corallites and Philippines coralla (especially) have more numerous septa and finer dentations. These are clear geographic, as distinct from environment-correlated, variations.

**TAXONOMIC REFERENCES:** Veron (1990c, 1991a).

**TYPE LOCALITY:** Ryukyu Is., Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to the Cook Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima, Amami Is.

**Additional Central Indo-Pacific records:** Vanuatu, Cook Is.

***Genus Lobophyllia***

de Blainville, 1830

***Lobophyllia hemprichii***

(Ehrenberg, 1834)

The most common *Lobophyllia* of the recorded Indo-west Pacific, uncommon Cocos (Keeling) Atoll, shows little or no taxonomically significant geographic variation.

TAXONOMIC REFERENCES: Veron and Pichon (1980), Veron (1986a).

TYPE LOCALITY: Red Sea.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Lord Howe Is.

**W Australia:** NW Shelf reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reefs, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Cocos (Keeling) Atoll, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

### *Lobophyllia diminuta*

Veron, 1985

Sometimes common in Vanuatu, rare elsewhere throughout the recorded distribution range.

TAXONOMIC REFERENCES: Veron (1985, 1986a).

TYPE LOCALITY: GBR.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Thailand to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Pompey and Swain Reefs.

**W Australia:** Ningaloo Reefs.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Thailand, Vanuatu.

*Lobophyllia corymbosa*

(Forskål, 1775)

Common on the GBR and in Vanuatu, generally uncommon in W Australia. There is less difference between this species and *L. hemprichii* at all W Australian locations than on the E coast, primarily because septal dentations are less easily contrasted. This suggests the presence of geographic subspecies. Uncommon in the Ryukyu Is., rare at Tanegashima. Has the same appearance *in situ* throughout the recorded Central Indo-Pacific distribution range where it exhibits little growth form variation and is usually blue-grey in colour.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Moreton Bay.

**W Australia:** Ashmore Reef, Kimberley coast Dampier Arch., Pilbara coast, Ningaloo Reefs, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

*Lobophyllia pachysepta*

Chevalier, 1975

Uncommon on the GBR and in Vanuatu. Exsert septo-costae are the same yellow colour throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Chevalier (1975), Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Coral Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Maldives Is. to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Vietnam, Malaysia, Vanuatu.

### *Lobophyllia hataii*

Yabe, Sugiyama and Eguchi 1936

Uncommon throughout W Australia, but more abundant than on the east coast where it is rare. Generally rare throughout the recorded Indo- west Pacific distribution range, but very distinctive.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Palau.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Saudi Arabia to New Caledonia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf reefs, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Amakusa Is., Kushimoto.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan, New Caledonia.

### *Lobophyllia robusta*

Yabe, Sugiyama and Eguchi, 1936

Uncommon throughout the recorded distribution range, but in the Philippines and Japan, sometimes forms conspicuous colonies over 2m diameter. Very large colonies have not been found on the GBR, but *Lobophyllia* sp. from E Australia of Veron *et al.* (1980) is probably this species.

**TAXONOMIC REFERENCES:** Yabe *et al.* (1936), Veron and Pichon (1980) (*Lobophyllia* sp.).

**TYPE LOCALITY:** Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Papua New Guinea.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, N and Central GBR

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima, Amami Is., Tanegashima, Amakusa Is., Kushimoto.

**Additional Central Indo-Pacific records:** S Papua New Guinea.

## *Genus Sympyllia*

Edwards and Haime, 1848

### *Sympyllia wilsoni*

Veron, 1985

A distinctive species restricted to SW Australia. Seldom found with other corals; rare at the Houtman Abrolhos Is., most commonly found on kelp- or *Sargassum*-dominated coastal exposed rock surfaces. Only *Coscinaraea marshae* has a similar distribution range, although habitat preferences are different.

**TAXONOMIC REFERENCES:** Veron (1985, 1986a).

**TYPE LOCALITY:** Houtman Abrolhos Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** SW Australia only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Geographe Bay, thence E to Bremer Bay on the S coast.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

### *Sympyllia recta*

(Dana, 1846)

Generally common throughout the recorded Central Indo-Pacific distribution range and shows little geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Wake I.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?E Africa and Maldives Is. to Marshall Is. and Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf reefs, Kimberley coast, Dampier Arch.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tosashimizu.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

### *Symphyllia radians*

Edwards and Haime, 1849

Probably less common than *S. recta* throughout most of the recorded Central Indo-Pacific distribution range. Has a similar range of variation and the same appearance *in situ* in the GBR, Philippines and Ryukyu Is., but at Tanegashima, where it is rare, colonies are small, encrusting, and brick- or bright red in colour.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** "East Indies".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Solitary Is.

**W Australia:** Ashmore Reef, Ningaloo Reefs.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

*Symphyllia agaricia*

Edwards and Haime, 1849

Generally common in Vanuatu and E and W Australia, uncommon in the Ryukyu Is. except in isolated locations; rare at Tanegashima. Has a similar range of variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf reefs, Dampier Arch., Ningaloo Reefs.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

*Symphyllia valenciennesi*

Edwards and Haime, 1849

Common in Vanuatu, but generally rare elsewhere in the recorded Central Indo-Pacific distribution range. Colonies at the Ryukyu Is. are mostly grey and have a similar range of variation as in the Philippines and the GBR. Colonies in mainland Japan are distinctive, with thick, fleshy polyps of a wide range of colours, including brown, red, blue, grey and green. There is some doubt that Ryukyu Is. and mainland colonies are the same species. The latter are distinguished, at least, as a geographic sub-species.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Singapore.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Saudi Arabia and Aldabra to Vanuatu and ?Tonga.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf reefs, Dampier Arch.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Thailand, Malaysia, Indonesia, Taiwan, Vanuatu.

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*Family*  
*Merulinidae*

Verrill, 1866

The five genera in this family have all been recorded in the Central Indo-Pacific. It is represented by only one species at Cocos (Keeling) Atoll and two at Christmas I. (Indian Ocean). *Boninastrea* has been recorded in Indonesia (Borel Best pers. comm.) and the Ogasawara Is. of Japan (type locality of *B. boniniensis*), but the genus has not been found in the Philippines or elsewhere in Japan.

*Genus Hydnophora*  
Fischer de Waldheim, 1807

Of the five species recorded from the Central Indo-Pacific, *H. pilosa* and *H. grandis* may be difficult to recognise unless they occur with the two common species they resemble (*H. exesa* and *H. rigida*, respectively).

Taxonomic note: This genus was formerly placed in Family Faviidae.

*Hydnophora rigida*  
(Dana, 1846)

Common in Vanuatu and tropical Australian locations, especially in lagoons and on protected reef slopes, but absent in higher latitudes. Common also in Philippines where it may form monospecific stands on upper reef slopes and on reef flats. Coralla from the latter biotopes have very compacted branches and small and compacted monticules, whereas coralla from deeper or turbid biotopes have a lax branching pattern and larger, more widely spaced monticules. What geographic variability there may be is masked by these environment-correlated variations.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central CBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract,

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Vietnam, Indonesia, Malaysia, N Papua New Guinea, Vanuatu.

*Hydnophora grandis*

Gardiner, 1904

May be more widespread than recorded below as it is reliably separated from *H. rigida* only if both species occur together.

**TAXONOMIC REFERENCES:** Gardiner (1904).

**TYPE LOCALITY:** Maldive Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Maldive Is. to Philippines.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Indonesia.

*Hydnophora pilosa*

Veron, 1985

Common at the Houtman Abrolhos Is., uncommon elsewhere. Difficult to distinguish from *H. exesa*, except where both species occur together. Is relatively abundant in higher latitudes of Australia.

**TAXONOMIC REFERENCES:** Veron (1985, 1986a).

**TYPE LOCALITY:** Elizabeth Reef (E Australia).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: Elizabeth and Middleton Reefs.

W Australia: Ashmore Reef, Scott Reef, Dampier Arch., Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

Philippines - Japan: not found.

**Additional Central Indo-Pacific records:** N Papua New Guinea.

*Hydnophora bonsai*

Japan, Veron, 1990

Apparently a high-latitude endemic of Japan. Growth form is similar to *H. exesa* but is finer, with relatively stunted branches. Could have been considered a geographic subspecies of *H. exesa* had not these two species been found to occur together.

**TAXONOMIC REFERENCES:** Veron (1990c, 1991a).

**TYPE LOCALITY:** Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** mainland Japan only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** none.

*Hydnophora exesa*

(Pallas, 1766)

Common throughout the recorded Central Indo-Pacific distribution range except in Vanuatu and the Ryukyu Is. where it is uncommon. Tentacles are usually retracted during the day in the Ryukyu Is., but are usually extended in mainland locations. Usually pale coloured in the Ryukyu Is., but may be green, red or brown at Shirahama. Usually has a very wide range of growth forms, most of which are clearly environment- correlated. Little taxonomically significant geographic variation in growth form has been recorded.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** "India Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea , The Gulf and E Africa to Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Moreton Bay, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu, Tateyama.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

*Hydnophora microconos*

(Lamarck, 1816)

Seldom common in the recorded Central Indo-Pacific except on upper reef slopes of Vanuatu. Shows little variation, either environment- correlated or geographic.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Solitary Is.

**W Australia:** Ashmore Reef, Kimberley coast, Broome, Dampier Arch., Pilbara coast, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

*Genus Paraclavarina*

Veron, 1985

**Taxonomic note:** This genus was formerly *Clavarina*, now considered invalid.

## *Paraclavarina triangularis*

Veron and Pichon, 1980

Environment-correlated variation includes density of branching, in a manner similar to that of *H. rigida*. Has been studied only in the GBR where no taxonomically significant geographic variation has been recorded.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.  
**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Indonesia, N Papua New Guinea, S Papua New Guinea.

## *Genus Merulina*

Ehrenberg, 1834

### *Merulina ampliata*

(Ellis and Solander, 1786)

Common and widespread throughout the recorded Central Indo-Pacific distribution range except at Vanuatu where it is uncommon. Has a wide range of variation, including colonies being composed entirely of tiers of plates to colonies being composed primarily of irregular branches. In tropical locations, the latter growth form predominates, while in higher latitude Australian and Japanese locations, plate-like colonies predominate. There remains a possibility that at least some of the plate-like colonies are a separate species.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Kiribati.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Lord Howe I.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Merulina scabricula*

Dana, 1846

Much less common than *M. ampliata* on the GBR, but relatively common in Vanuatu and tropical W Australia. Restricted to tropical locations in Australia. Common in the Ryukyu Is., rare at Tanegashima where colonies consist only of flat sheets which are a dark yellowish-orange.

**TAXONOMIC REFERENCES:** Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Mergui Arch. to Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Indonesia, N Papua New Guinea, Vanuatu.

## *Genus Scapophyllia*

Edwards and Haime, 1848

### *Scapophyllia cylindrica*

(Edwards and Haime, 1848)

Generally uncommon throughout most of the recorded Central Indo-Pacific distribution range. Colonies from Australia are brown or brownish-green in colour and consist of encrusting plates which develop columns. Well-developed colonies are entirely columnar. Japanese colonies are mostly smaller, pillow-like, and pale grey in colour. There are no taxonomically significant differences in skeletal detail between Japanese and Australian coralla, but geographic subspecies can be distinguished.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** South China Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Andaman Is. to Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.



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15

*Family*

*Faviidae*

Gregory, 1900

The Faviidae contains more genera than any other scleractinian family and is second only to the Acroporidae in number of species and overall abundance throughout the Indo-Pacific. With few exceptions the genera are well-defined and widely distributed. Two Indo-Pacific genera (*Favia* and *Montastrea*), also occur in the Atlantic and two others (*Astrosomilia* and *Erythrasrea*) are restricted to the western Indian Ocean.

Most species are widely distributed, both longitudinally and latitudinally. They usually exhibit less inter-regional variation than other major groups of corals and this, combined with the rarity of endemic species, gives a relatively uniform Central Indo-Pacific fauna.

Some species of faviids are restricted to intertidal habitats and upper reef slopes, but most occur over a wide range of environments. These species have a similar, correspondingly wide, range of skeletal variation. Coralla from high energy environments exposed to strong sunlight have heavily calcified skeletal structures and compact corallites. Those from deep or turbid-water, with poorly illuminated environments, are always lightly calcified and have relatively small corallites, widely separated by blistery coenosteum. This similarity in response to environmental gradients frequently results in coralla of different species from the same environment looking superficially more alike than coralla of the same species from very different environments.

Geographic variation within species is greatest between high latitudes and tropical locations, coralla from different tropical regions frequently showing minimal morphological differences. There may be, however, major differences in the relative abundances of species in different tropical regions. Coralla from high latitude regions are usually heavily calcified, accentuating the skeletal characteristics found in coralla from shallow-water tropical habitats.

Because of their solid construction and wide geographic distribution, most faviid genera are readily preserved as fossils and have a good fossil record.

## *Genus Caulastrea*

Dana, 1846

The four species listed below are well-defined and are probably the full species complement of the genus. One of the three species of W Australia is restricted to the NW Shelf reefs, the second to the Kimberley coast (a new record, Marsh pers. comm.) while the third is widespread in coastal locations. The two species of the Ryukyu Is. co-occur, while all four species extend from the GBR to the Philippines.

*Caulastrea tumida* is most commonly found in turbid water, and occurs commonly in high latitude non-reefal environments of Japan, while the other species are typically found in clear-water reefal environments.

### *Caulastrea echinulata*

(Edwards and Haime, 1949)

Uncommon throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Singapore.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Singapore to E Australia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea,  
N and Central GBR.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Malaysia, Singapore, Indonesia, S Papua New Guinea.

### *Caulastrea furcata*

Dana, 1846

Restricted to NW Shelf reefs of W Australia where colonies are indistinguishable from those from the GBR. Uncommon on the GBR, rare in Vanuatu, generally common in the Ryukyu Is., forming extensive compact colonies in exposed biotopes. Some Japanese coralla, especially those from shallow biotopes, may become plocoid in growth form. Brown with yellowish exsert septa throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to Fiji and Tonga.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** Ashmore Reef, Scott Reef.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, N Papua New Guinea, Taiwan, Vanuatu.

*Caulastrea curvata*

Wijsman-Best, 1972

Generally uncommon throughout the recorded Central Indo-Pacific distribution range. Recorded from a single outcrop in the Ryukyu Is. and only from the Kimberley coast of NW Australia. Shows little environment- correlated or taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** New Caledonia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia and W Australia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR.

**W Australia:** Kimberley coast.

**Philippines - Japan:** Philippines, Okinawa Is.

**Additional Central Indo-Pacific records:** Indonesia, N Papua New Guinea, New Caledonia, Vanuatu.

*Caulastrea tumida*

Matthai, 1928

Rare on the GBR but by far the most common *Caulastrea* on the W Australian coast, where it occurs in turbid water south to the Houtman Abrolhos Is. Generally uncommon in the Ryukyu Is., where it occurs in similar environments becoming relatively more common in mainland Japan. In Japan and the Philippines, colonies may be sub-placoid, even placoid. Environment-correlated growth form variations overshadow possible taxonomically significant geographic variations within the tropical Central Indo-Pacific.

TAXONOMIC REFERENCES: Veron *et al.* (1977), Veron (1986a).

TYPE LOCALITY: Singapore.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** N and Central GBR, Coral Sea.

**W Australia:** Kimberley coast, Lacepede Is., Dampier Archipelago, Pilbara coast, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Tateyama.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, N Papua New Guinea.

## *Genus Favia*

Oken, 1815

One of the most widely distributed of all coral genera, in both the Indo-Pacific and Atlantic. Individual species are also very widely distributed in the Central Indo-Pacific and many have distribution limits extending to, and beyond, the latitudinal limits of reefs. Four undescribed species are included in the present account but several additional probable species are omitted as these require further study.

### *Favia stelligera*

(Dana, 1846)

Common throughout E Australia, Vanuatu and at Cocos (Keeling) Atoll, generally uncommon in Japan. Usually restricted to exposed biotopes. Coralla from intertidal environments may have very modified skeletal characteristics. Coralla show no taxonomically significant geographic variation.

TAXONOMIC REFERENCES: Veron *et al.* (1977), Veron (1986a).

TYPE LOCALITY: Fiji.

DISTRIBUTION:

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Moreton Bay, Solitary Is.

**W Australia:** NW Shelf Reefs, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Favia laxa*

(Klunzinger, 1879)

Uncommon or rare throughout the recorded Central Indo-Pacific distribution range. Shows little environment-correlated variation. Coralla from the GBR, Philippines and Japan show little or no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, S Papua New Guinea.

*Favia helianthoides*

Wells, 1954

Uncommon or rare throughout the recorded Central Indo-Pacific distribution range. The full range of skeletal variation has not been determined but coralla from the GBR, Philippines and Japan show little or no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Wells (1954), Veron (1986a).

**TYPE LOCALITY:** Marshall Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Saudi Arabia to Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea.

**W Australia:** Ashmore Reef, Scott Reef, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tosashimizu, Amakusa Is., Kushimoto.

**Additional Central Indo-Pacific records:** Thailand, Indonesia, Vanuatu.

***Favia pallida***

(Dana, 1846)

Common over a wide range of habitats throughout the tropical Central Indo-Pacific and the most common faviid of eastern Australia. Common throughout the Ryukyu Is. and Tanegashima, uncommon further north. Lack of conservative skeletal characters may make this species difficult to distinguish from *F. speciosa* and perhaps other species unless they occur together (in which case there are usually readily separated) or other identification aids, such as colour, are used. Corallites of GBR, Cocos (Keeling) Atoll, Philippine and Ryukyu Is. colonies usually have dark calices. Colonies in mainland Japan have a wider range of colours.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea, The Gulf and E Africa to Samoa and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

## *Favia speciosa*

(Dana, 1846)

Much less common than *F. pallida* in Australia, Vanuatu and Japan except in high latitude non-reefal locations. Great Barrier Reef and Ryukyu Is. colonies have uniform colours, usually pale brown, whereas high latitude coastal Australian and mainland Japan colonies are often more colourful. Japanese coralla have a similar range of variation as those from the Philippines and GBR except that corallites tend to be smaller.

**TAXONOMIC REFERENCES:** Veron and Pichon (1982) and Veron (1986a).

**TYPE LOCALITY:** "East Indies".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Moreton Bay, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu, Tateyama.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, Hong Kong, Taiwan, N Papua New Guinea, Vanuatu.

## *Favia favus*

(Forskål, 1775)

Common throughout W Australia south to the Houtman Abrolhos Is. and the only *Favia* to extend to more southern locations. Generally uncommon in Vanuatu and the Ryukyu Is. but common in mainland Japan. Coralla show no taxonomically significant geographic variation. Has a wide range of colours, either uniform colours, or with oral discs and walls of different colours. Is relatively dark in high latitude locations.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Solitary Is.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Shark Bay region, Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is., SW coastal locations S to Cockburn Sound.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Favia danae*

Verrill, 1872

Common in some Ryukyu I. locations where colonies are usually mottled green, yellow-green and brown. Uncommon at Tanegashima where colonies are mostly dark colours. Further study is likely to indicate that this species is much more widespread than indicated below.

**TAXONOMIC REFERENCES:** Yabe *et al.* (1936), although the illustrations are not clearly this species.

**TYPE LOCALITY:** Tonga.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to ?Tonga.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs (not previously recorded).

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** none.

*Favia matthaii*

Vaughan, 1918

Generally common throughout the recorded Central Indo-Pacific distribution range except at Cocos (Keeling) Atoll where it is uncommon. Coralla show no taxonomically significant geographic variation and colonies have a similarly wide colour range.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** "Western Indian Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Madagascar to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Dampier Archipelago, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

*Favia* sp. Vanuatu

Uncommon, but occurs over a wide range of environments. Is structurally very similar to *Favia rotumana* but corallites are approximately half the size.

**TAXONOMIC REFERENCES:** Veron (1990a).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Vanuatu only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

*Favia rotumana*

(Gardiner, 1899)

Generally uncommon in E and W Australia, rare in the Ryukyu Is.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Mozambique and Gulf of Oman to Samoa and Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** NW Shelf Reefs, Dampier Archipelago.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Hong Kong, Vietnam, Indonesia, Taiwan, N Papua New Guinea, S Papua New Guinea.

*Favia* sp. W Australia

A distinctive species known only from Rowley Shoals.

**TAXONOMIC REFERENCE:** Veron and Marsh (1988) (as *Favia* sp. 1).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** Rowley Shoals.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

*Favia maxima*

Veron, Pichon and Wijsman-Best, 1972

Uncommon throughout the recorded distribution range. There may be taxonomically significant inter-regional variation in this species.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Chagos and Thailand to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Dampier Archipelago, Ningaloo Reefs, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Shirahama.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Indonesia, Taiwan, N Papua New Guinea.

*Favia rotundata*

(Veron, Pichon and Wijsman-Best, 1972).

Generally uncommon throughout the recorded distribution range. Colonies from tropical W and E Australian coasts are a distinctive grey and orange colour, those from the Abrolhos Is. are creamy-grey and those from the Ryukyu Is. are sometimes greenish-yellow. Ryukyu Is. coralla have slightly smaller corallites than usual in GBR coralla.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Red Sea, Malaysia and W Australia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef, Cartier Reef, Scott Reef, Dampier Archipelago, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima, Kushimoto.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Vanuatu.

*Favia lizzardensis*

Veron, Pichon and Wijsman-Best, 1972

Common in Vanuatu and the GBR, uncommon in W Australia. Always pinkish-brown with cream or green oral discs on the GBR and in Japan, commonly a uniform grey in tropical W Australia and a uniform brown at the Houtman Abrolhos Is. Generally uncommon in Japan except at Tanegashima where it is common. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Red Sea to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** NW Shelf Reefs, Dampier Archipelago, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Izu.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Indonesia, Hong Kong, Vanuatu.

*Favia veroni*

Moll and Borel-Best, 1984

Uncommon throughout the recorded Central Indo-Pacific distribution range. Coralla show no taxonomically significant geographic variation. Pale coloured in the Ryukyu Is., usually dark in Japan mainland locations.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977) (as *Favia* sp. 2), Moll and Borel-Best (1984), Veron (1986a).

**TYPE LOCALITY:** Indonesia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia and W Australia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, N and Central GBR.

**W Australia:** Ashmore Reef, Dampier Archipelago, Pilbara coast, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia, Vanuatu.

***Favia maritima***

(Nemenzo, 1971)

Generally uncommon throughout the recorded distribution range. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Nemenzo (1971), Veron *et al.* (1977) (as *Favia* sp. 1), Veron (1986a).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, N and Central GBR, Flinders Reef.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Vietnam, Taiwan, N Papua New Guinea, Vanuatu.

***Favia* sp. Papua New Guinea**

Common in Papua New Guinea but not recorded elsewhere. Corallites are similar to *F. pallida* but smaller.

**TAXONOMIC REFERENCE:** Veron and Kelley (1988) (as *Favia* sp. 1).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Papua New Guinea and Torres Strait only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Torres Strait.

W Australia: not found.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: none.

***Favia* sp. Thailand**

Rare; originally recorded from Thailand, then from two coralla from Japan. This may be the same species as *Favia* sp. of Veron and Hodgson (1989) from the Philippines. Coralla are primarily characterised by small corallites (4 - 5.5mm diameter) with fine, neat, septa and a columella crown.

**TAXONOMIC REFERENCE:** Veron and Hodgson (1989).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Possibly Thailand to Japan.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Okinawa Is.

Additional Central Indo-Pacific records: Thailand.

***Genus Barabattoia***

Yabe and Sugiyama, 1941

This is an ill-defined genus possibly containing four species, only one of which has been encountered during the present study.

***Barabattoia amicorum***

(Edwards and Haime, 1850)

Generally uncommon throughout the recorded distribution range except for some turbid water biotopes of the Houtman Abrolhos Is. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a) (as "*Favia amicorum* complex").

**TYPE LOCALITY:** Tonga.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Mozambique to ?French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Kimberley coast, Dampier Archipelago, Ningaloo Reef Tract, Houtman Abrolhos Is., SW coastal locations S to Fremantle.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

## *Genus Favites*

Link, 1807

As with *Favia*, there are likely to be more *Favites* species on most Central Indo-Pacific reefs than have so far been studied.

The distribution range Indo-Pacific *Favites* is similar to that of *Favia*. *Favites* is particularly common in higher latitudes, occurring on the SW and SE Australian and Japan mainland coast, well south of the southern limits of reefs. As with *Favia*, most species are widely and uniformly spread, with many minor regional differences in colour, skeletal detail and abundance.

Coralla of most species from high latitudes are heavily calcified with thick septa and elongate septal dentations. Such coralla are readily distinguished from, but intergrade with, coralla from tropical locations.

### *Favites chinensis*

(Verrill, 1866)

Uncommon in Australia, sometimes common in Japan, especially at Tanegashima where it forms large colonies. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Hong Kong.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and ?E Africa to Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs.

**W Australia:** Ashmore Reef, Kimberley coast, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is.

**Additional Central Indo-Pacific records:** N Papua New Guinea, Malaysia, Indonesia, Taiwan, Vanuatu.

*Favites abdita*

(Ellis and Solander, 1786)

Common over the recorded Indo-west Pacific distribution range except for Cocos (Keeling) Atoll where it is uncommon. Found in a very wide range of habitats and has a similarly wide range of variation, none of which appears to be taxonomically significant. Usually honey or cream coloured in tropical latitudes; colonies from higher latitudes (including temperate coastal Australia and mainland Japan) have a wider range of darker (grey, green and brown) colours.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Moreton Bay, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is., N coastal New South Wales S to Forster.

**W Australia:** Ashmore Reef, Scott Reef, Kimberley coast, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Geographe Bay.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Favites halicora*

(Ehrenberg, 1834)

An ill-defined species which is difficult to distinguish from *F. abdita* unless both species occur together. Generally uncommon except in W Australia, especially on upper reef slopes of the Houtman Abrolhos Is. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Loyalty Is. and Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Moreton Bay, Elizabeth and Middleton Reefs, Solitary Is.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Ningaloo Reef Tract, Houtman Abrolhos Is., Marmian region.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Singapore, Vietnam, Indonesia, Malaysia, Taiwan, N Papua New Guinea, Vanuatu.

*Favites flexuosa*

(Dana, 1846)

Generally common in E and W Australia and the Ryukyu Is., uncommon in Vanuatu. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I., N coastal New South Wales, Solitary Is.

**W Australia:** Ashmore Reef, Kimberley coast, Dampier Archipelago, Ningaloo Reef Tract, Houtman Abrolhos Is., SW coastal locations S to Cockburn Sound.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Hong Kong, Taiwan, N Papua New Guinea, Vanuatu.

*Favites complanata*

(Ehrenberg, 1834)

Generally common in E and W Australia and Vanuatu, uncommon in Japan except Tanegashima where it is common. Japanese colonies are usually uniform pale grey, brown or cream in colour, except at Tanegashima where they have a wide colour range. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Lord Howe I.

**W Australia:** Ashmore Reef, Scott Reef, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is., SW coastal locations S to Geographe Bay.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Favites pentagona*

(Esper, 1794)

Common throughout tropical E and W Australia, the Ryukyu Is. and Tanegashima, where it has a wide range of uniform or mottled colours, pale brown or cream being the most common. Generally uncommon in Vanuatu and mainland Japan where colonies are usually encrusting and have a very wide range of pale or bright colour combinations. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** "East Indies".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea, The Gulf and E Africa to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Lancelin, Researche Archipelago.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Favites stylifera*

Yabe and Sugiyama, 1937

Probably rare. The only recorded colour is cream.

**TAXONOMIC REFERENCE:** Yabe and Sugiyama, 1937.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Japan only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** none.

*Favites russelli*

(Wells, 1954)

Rare throughout the Ryukyu Is, but common in mainland Japan. Coralla show no taxonomically significant geographic variation.

TAXONOMIC REFERENCES: Veron *et al.* (1977), Veron (1986a).

TYPE LOCALITY: Marshall Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Marshall Is. and ?French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Lord Howe I., Solitary Is.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Cockburn Sound.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Favites* sp. W Australia

This is a distinctive species only recorded from W Australia and having characteristics of both *Favites* and *Favia*.

TAXONOMIC REFERENCE: Veron and Marsh (1988) (as *Favites* sp. 1).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

## *Genus Goniastrea*

Edwards and Haime, 1848

For most *Goniastrea* species, there are significant differences in colour and/or skeletal detail, between colonies from temperate and tropical locations. Often the dominant corals of intertidal mudflats, rock platforms and some outer reef flats. Includes some of the most tolerant of all coral species to emersion, the same species occurring in intertidal environments throughout the Central Indo-Pacific distribution range.

Most species are well-defined and widely distributed, showing little taxonomically significant geographic variation. Environment-correlated variation may reach extremes in some intertidal habitats where, for example, normally cerioid species may develop colonies with meandroid upper surfaces.

### *Goniastrea retiformis*

(Lamarck, 1816)

Generally common in shallow, exposed biotopes of most of the recorded Central Indo-Pacific distribution range except Tanegashima, where it is rare. Coralla show no taxonomically significant geographic variations. Usually pale orange-brown throughout its range, but in Japan may be bright green where light is limiting.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

#### **DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Samoa.

#### **Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is., SW coastal locations S to Port Gregory.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Goniastrea edwardsi*

Chevalier, 1971

Common in most tropical localities where it occupies the same biotopes as *G. retiformis*. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Seychelles Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Red Sea and E Africa to Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Pilbara coast, Dampier Arch., Ningaloo Reef Tract, Shark Bay, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Goniastrea deformis*

Veron, 1990

Uncommon and may be endemic to high latitude locations of Japan. Paliform lobes are usually well developed, but this, as with other *Goniastrea* species, is variable and some coralla, especially those from Kushimoto, have only weakly formed paliform lobes and hence a *Favites*- like appearance. Some coralla from Kushimoto have some development of a 'groove and tubercle' formation.

**TAXONOMIC REFERENCES:** Veron (1990c, 1991a).

**TYPE LOCALITY:** Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** mainland Japan only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu, Tateyama.

**Additional Central Indo-Pacific records:** none.

***Goniastrea aspera***

(Verrill, 1865)

Generally common in E and W Australia, especially on intertidal reef flats of NW Shelf reefs, generally uncommon in the Ryukyu Is. Morphological variation, especially in the development of the paliform lobes, is not always correlated with environment and further study may reveal the presence of a second species. Uniform pale to dark orange-brown throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Hong Kong.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?E Africa and Mergui Arch. to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, N and Central GBR, Capricorn and Bunker Reefs.

W Australia: Ashmore Reef, Scott Reef, Kimberley coast, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal localities.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Kushimoto, Izu.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

***Goniastrea favulus***

(Dana, 1846)

Uncommon or rare throughout the recorded Central Indo-Pacific distribution range except for some intertidal tropical biotopes.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Lakshadweep Is. to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** Ashmore Reef, Scott Reef, Dampier Archipelago, Pilbara coast, Shark Bay region, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia, N Papua New Guinea, Hong Kong, Vanuatu.

*Goniastrea pectinata*

(Ehrenberg, 1834)

Generally uncommon in Japan, common in Vanuatu and Australia, especially on upper reef slopes and flats and shallow lagoons. Usually the same pale pinkish-brown throughout the tropics, but may be dark colours in mainland Japan. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and ?E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

## *Goniastrea australensis*

(Edwards and Haime, 1857)

Uncommon on the GBR and not recorded from the NW Shelf reefs of W Australia but common in coastal W Australian localities and higher latitude E Australia, rare throughout the Ryukyu Is. and the Amakusa Is., common at Shirahama and Kushimoto. Shows no taxonomically significant geographic variation. Some Australian coralla attributed to this species have very well developed ambulacral grooves above the walls: these may represent a distinct species.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** "Australia".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Pitcairns Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I., N coastal New South Wales S to Forster, Solitary Is.

**W Australia:** Kimberley coast, Dampier Archipelago, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Geographe Bay.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu ?, Amakusa Is., Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Taiwan, N Papua New Guinea, Vanuatu.

## *Goniastrea* sp. W Australia

Recorded only from the Houtman Abrolhos Is. Coralla attributed to this species have skeletal characters close to *G. australensis* but are monocentric.

**TAXONOMIC REFERENCE:** Veron and Marsh (1988) (*Goniastrea* sp.).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** Houtman Abrolhos Is.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

*Goniastrea palauensis*

(Yabe and Sugiyama, 1936)

Seldom common but occupies a wide range of biotopes. There is considerable skeletal variation in the degree of development of paliform lobes, this does not seem to vary geographically.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Palau.

**DISTRIBUTION:****Indo-Pacific longitudinal distribution:**

?Aldabra and W Australia to E Australia and ?Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** Ashmore Reef, Scott Reef, Dampier Archipelago, Ningaloo Reef Tract, Houtman Abrolhos Is., Marmian region.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia.

*Genus Platygyra*

Ehrenberg, 1834

The eight species of Central Indo-Pacific *Platygyra* recognised in this study all have similar skeletal characters. All show similar skeletal modifications along environmental gradients and some, especially *P. daedalea* and *P. lamellina*, may be difficult to distinguish unless they are collected from the same biotope.

*Platygyra daedalea*

(Ellis and Solander, 1786)

Common in Vanuatu, the GBR and W Australia, rare throughout the Ryukyu Is. and at the Amakusa Is., common at Shirahama and Kushimoto.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:****Indo-Pacific longitudinal distribution:**

Red Sea, The Gulf and E Africa to Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Platygyra lamellina*

(Ehrenberg, 1834)

Common in the Houtman Abrolhos Is., but generally uncommon in Vanuatu, tropical Australia and the Ryukyu Is. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:****Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Samoa.**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Moreton Bay, Flinders Reef, Elizabeth and Middleton Reefs, Solitary Is.

**W Australia:** Ashmore Reef, Scott Reef, Kimberley coast, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Geraldton.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Platygyra sinensis*

(Edwards and Haime, 1849)

Common in Vanuatu, the GBR and tropical W Australia, generally uncommon in Japan. Shows no taxonomically significant geographic variation.

TAXONOMIC REFERENCES: Veron *et al.* (1977), Veron (1986a).

TYPE LOCALITY: "China Sea".

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Red Sea to Vanuatu and ?Samoa.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs.

W Australia: NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Ningaloo Reef Tract, Port Gregory region.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Kushimoto.

Additional Central Indo-Pacific records: Thailand, Singapore, Malaysia, Hong Kong, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Platygyra ryukyuensis*

Yabe and Sugiyama, 1935

Common in S Papua New Guinea, uncommon in most locations throughout the recorded distribution range. Has a similar range of variation in Japan the Philippines.

TAXONOMIC REFERENCES: Yabe *et al.* (1936).

TYPE LOCALITY: Japan.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: W Australia to Vanuatu.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: S Papua New Guinea, Central GBR (new record).

W Australia: Ashmore Reef, Scott Reef, Ningaloo Reef Tract.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is.

Additional Central Indo-Pacific records: Vanuatu.

*Platygyra pini*

Chevalier, 1975

Common in most tropical localities and probably the most common *Platygyra* of Japan. Has a similar range of variation throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Chevalier (1975), Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Chesterfield Reefs.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia and W Australia to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract, Shark Bay region.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tosashimizu, Amakusa Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Hong Kong, Taiwan, N Papua New Guinea, Vanuatu.

*Platygyra contorta*

Veron, 1990

Generally uncommon in Vanuatu and the Ryukyu Is., becoming common in mainland Japan, also some equatorial countries. No taxonomically significant geographic variation as been determined, all variation in the species being environment-correlated or correlated to position on the colony.

**TAXONOMIC REFERENCES:** Veron (1990c).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** Vanuatu.

*Platygyra verweyi*

Wijsman-Best, 1976

Uncommon or rare throughout the known Central Indo-Pacific distribution range. Living colonies have the same appearance in the Philippines as Japan; skeletal variations have not been studied.

TAXONOMIC REFERENCES: Veron (1986a).

TYPE LOCALITY: Indonesia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Thailand to Indonesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Thailand, Indonesia.

*Platygyra yaeyamaensis*

(Eguchi and Shirai, 1977)

Probably endemic to the Ryukyu Is. where it is rare.

TAXONOMIC REFERENCES: Shirai (1980), Veron (1991a).

TYPE LOCALITY: Ryukyu Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Ryukyu Is. only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** none.

## *Genus Australogyra*

Veron and Pichon, 1982

This is a well-defined monospecific genus.

### *Australogyra zelli*

(Veron, Pichon and Wijsman-Best, 1972)

Generally uncommon on protected fringing reefs, rare elsewhere. Shows no taxonomically significant variation throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a) (as *Platygyra zelli*).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia to Solomon Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia, S Papua New Guinea.

## *Genus Leptoria*

Edwards and Haime, 1848

### *Leptoria phrygia*

(Ellis and Solander, 1786)

Common throughout the recorded Central Indo-Pacific distribution range except at Cocos (Keeling) Atoll where it is uncommon. Shows no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** "Pacific Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Leptoria irregularis*

Veron, 1990

Rare on the GBR, uncommon in the Ryukyu Is. and probably restricted to exposed habitats.

**TAXONOMIC REFERENCES:** Veron (1990c, 1991a).

**TYPE LOCALITY:** Yaeyama Is., Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to GBR.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** N GBR.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is. Amami Is.

**Additional Central Indo-Pacific records:** none.

## *Genus Oulophyllia*

Edwards and Haime, 1848

Veron and Hodgson (1989) note that the possible validity of *Coelogyra laevis* Nemenzo as a third species of *Oulophyllia* requires further study.

### *Oulophyllia crispa*

(Lamarck, 1816)

Generally common in NW Australia, uncommon to rare in the GBR and Ryukyu Is. In the Philippines and Amakusa Is., colonies may have larger valleys than found in GBR colonies.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** "Indian Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Phoenix Is. and Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Dampier Archipelago, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Oulophyllia bennettiae*

(Veron, Pichon and Wijsman-Best, 1972)

Common in Vanuatu and tropical Australia, rare in the Ryukyu Is. Colonies from Vanuatu, the GBR, Philippines and Japan are the same distinctive greenish-grey with pink oral discs, while W Australian colonies are usually a uniform grey.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a) (as *Favites bennettiae*).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Lord Howe I.

**W Australia:** NW Shelf Reefs, Pilbara coast, Dampier Arch.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

## *Genus Montastrea*

de Blainville, 1830

A poorly defined genus. Species are mostly distinctive species within a given region, but over wider geographic ranges several have distinctive geographic subspecies of doubtful taxonomic affinity within the species.

### *Montastrea curta*

(Dana, 1846)

Very common on exposed upper reef slopes throughout the recorded Central Indo-Pacific. Colonies are primarily encrusting on upper reef slopes and reef flats of the Houtman Abrolhos Is. Corallites of coralla from mainland Japan are relatively large, otherwise they show no taxonomically significant variation. Usually orange-brown in the Ryukyu Is. and in deeper water of mainland Japan and dark brown in shallow water mainland locations.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Madagascar to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I, Solitary Is.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Port Gregory.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Montastrea annuligera*

(Edwards and Haime, 1849)

Generally rare throughout the recorded Central Indo-Pacific distribution range. Japanese coralla have more exert and more dentate septa than those from the GBR indicating the presence of geographic subspecies.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** "Australia".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** Ashmore Reef.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, Vanuatu.

### *Montastrea multipunctata*

Hodgson, 1985

Rare in Vanuatu and the Ryukyu Is. These colonies are similar to those from the Philippines. There remains some doubt about the validity of this species as distinct from *M. annuligera*.

**TAXONOMIC REFERENCES:** Hodgson (1985).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima.

**Additional Central Indo-Pacific records:** Vanuatu.

### *Montastrea magnstellata*

Chevalier, 1971

Generally uncommon in Australia and the Ryukyu Is. Coralla show taxonomically significant geographic variations, indicating the presence of geographic subspecies.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** New Caledonia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** NW Shelf Reefs, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, N Papua New Guinea, New Caledonia, Vanuatu.

### *Montastrea valenciennesi*

(Edwards and Haime, 1848)

Generally uncommon in Australian and the Ryukyu Is., common in mainland Japan. Usually found on exposed upper reef slopes of the Ryukyu Is., or on partly exposed rock faces of mainland Japan. Has a similar range of variation in Japan and the Philippines, but corallites are much smaller than usual in GBR coralla and, with other differences, indicate the presence of geographic subspecies.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Madagascar to Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swaine Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

## *Genus Oulastrea*

Edwards and Haime, 1848

A well-defined, monospecific genus.

### *Oulastrea crispata*

(Lamarck, 1816)

Generally uncommon throughout the known Central Indo-Pacific distribution range but very distinctive and found only in shallow water attached to wave-washed rock where few other corals occur. Colonies are always small, flat or dome-shaped and dark in colour except for the septal margins which are white. There is little environment-correlated variation and no taxonomically significant geographic variation. This is the most northerly distributed of all hermatypic corals, having been recorded from the Noto Peninsula of N Honshu, Japan (Yajima *et al.*, 1986).

**TAXONOMIC REFERENCES:** Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Red Sea to Indonesia to Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** Kimberley coast.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu, Tateyama.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Vietnam, Indonesia, N Papua New Guinea.

## *Genus Plesiastrea*

Edwards and Haime, 1848

Although there are nine nominal species of this genus, it is likely that there is only one valid species in the Central Indo-Pacific.

### *Plesiastrea versipora*

(Lamarck, 1816)

Generally uncommon but one of the most widely distributed corals and the only hermatypic species to occur around the entire Australian coastline. Coralla from S Australia were formerly called *P. urvillei* Edwards and Haime. Forms a distinctive subspecies which integrates with tropical coralla in a similar manner on both the E and W Australian coasts. Colonies are either brown or green in Australia, green colonies being more abundant in high latitudes, except at the Houtman Abrolhos Is. As far as is recorded, all colonies are cream, brown, grey or green elsewhere in the Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

#### **DISTRIBUTION:**

##### **Indo-Pacific longitudinal distribution:**

Red Sea, The Gulf and E Africa to French Polynesia and Pitcairn I.

##### **Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Moreton Bay, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is., Sydney, N and S coastal New South Wales and Victoria.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Geographe Bay, thence E to Duke of Orleans Bay.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu, Tateyama.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Hong Kong, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, Vanuatu.

## *Genus Diploastrea*

Matthai, 1914

A very distinctive monospecific genus. Several skeletal characters, notably alternating septa-costae which are very thickened in the region of the theca, indicate a major taxonomic separation from other Faviidae.

### *Diploastrea heliopora*

(Lamarck, 1816)

One of the most widely distributed of all species. It shows minimal variation of any kind.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Australia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Phoenix Is. and Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR.

**W Australia:** NW Shelf Reefs, Dampier Archipelago, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, Vanuatu.

## *Genus Leptastrea*

Edwards and Haime, 1848

As with *Montastrea*, several species of *Leptastrea* appear to have geographic subspecies.

### *Leptastrea inaequalis*

Klunzinger, 1879

Generally uncommon throughout the known Central Indo-Pacific distribution range and shows no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a) (as *L. bottae*).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Vanuatu and ?Hawaii.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Malaysia, Indonesia, Vanuatu.

*Leptastrea bottae*

(Edwards and Haime, 1849)

Rare throughout the recorded Central Indo-Pacific distribution range except at Cocos (Keeling) Atoll where it is uncommon.

Taxonomic note: The *Leptastrea bottae* of Veron *et al.* (1977) is *L. inaequalis*.

**TAXONOMIC REFERENCES:** The holotype is figured, Veron *et al.* (1977).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and Mozambique to W Australia and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** Ashmore Reef, Ningaloo Reef Tract.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Cocos (Keeling) Atoll, Indonesia.

*Leptastrea purpurea*

(Dana, 1846)

Common throughout the recorded Central Indo-Pacific distribution range. Corallites of Japanese coralla are more uniform in size than usual in GBR coralla. Colonies at the Houtman Abrolhos Is. usually have tentacles extended during the day.

**TAXONOMIC REFERENCES:** Wijsman-Best (1980), Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Hawaii and Pitcairns Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu, Tateyama.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Vietnam, Indonesia, Taiwan, Vanuatu.

*Leptastrea transversa*

Klunzinger, 1879

Generally uncommon throughout the known Central Indo-Pacific distribution range except at Vanuatu and Cocos (Keeling) Atoll where it is common and where colonies are greenish-yellow and have uniform corallites. These are more distinct from *L. purpurea* than is usual for GBR colonies. This species requires revision over a wide geographic range.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea, The Gulf and E Africa to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I.

**W Australia:** NW Shelf Reefs, Kimberley coast, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, Vanuatu.

*Leptastrea pruinosa*

Crossland, 1952

Uncommon throughout the recorded Central Indo-Pacific distribution range. Corallites are relatively small in Japanese coralla, indicating the presence of a geographic subspecies.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** E Africa to Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tosashimizu, Izu.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, Vanuatu.

*Leptastrea bewickensis*

Veron, Pichon and Wijsman-Best, 1977

Rare throughout the Ryukyu Is., but common at Tanegashima. Coralla from the GBR, the Ryukyu Is. and Tanegashima all show taxonomically significant geographic variations, especially in the development of the columella and the size of the corallites, with GBR coralla having the least well-developed columellae and the largest corallites.

Taxonomic note: Veron (1991a) notes that *Parasimplastrea* Sheppard, 1985 may be a junior synonym of *Leptastrea* as the type species, *Goniastrea simplicitexta* Umbgrove, 1939, a fossil, is close to, or synonymous with, the present species.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Thailand to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** N GBR, Flinders Reef, Elizabeth and Middleton Reefs.

**W Australia:** not found.

**Philippines - Japan:** Yaeyama Is., Okinawa Is., Amami Is., Tanegashima.

**Additional Central Indo-Pacific records:** Vietnam, Thailand.

### *Leptastrea* sp. W Australia

Known from a single, distinctive corallum.

**TAXONOMIC REFERENCES:** Veron and Marsh (1988).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** Ashmore Reef.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

## *Genus Cyphastrea*

Edwards and Haime, 1848

There are several undescribed central Central Indo-Pacific *Cyphastrea* and other little known species which might be valid; the latter includes *C. zhongjianensis* Zou, 1980.

### *Cyphastrea agassizi*

(Vaughan, 1907).

Generally uncommon throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Vaughan (1907) (as *Leptastrea agassizi*).

**TYPE LOCALITY:** Hawaii.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Cocos (Keeling) Atoll to Hawaii.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Torres Strait (not previously recorded).

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Cocos (Keeling) Atoll.

*Cyphastrea serailia*

(Forskål, 1775)

Very common and has a wide morphological variation throughout the recorded Central Indo-Pacific distribution range, but shows no taxonomically significant geographic variation. Varies greatly in colour, especially in shallow water and in higher latitudes of Australia and Japan.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Wijsman-Best (1980), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea, The Gulf and E Africa to Marshall and Pitcairn Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Moreton Bay, Elizabeth and Middleton Reefs, Lord Howe Is., Solitary Is.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Cockburn Sound.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu, Tateyama.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, Vanuatu.

*Cyphastrea chalcidicum*

(Forskål, 1775)

Generally common on the GBR, common on NW Shelf reefs of W Australia, common in Japan except at Shirahama where it is uncommon. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Wijsman-Best (1980), Veron (1986a).

**TYPE LOCALITY:** "Red Sea".

**DISTRIBUTION:****Indo-Pacific longitudinal distribution:**

Red Sea and Mozambique to Marshall Is. and Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Izu, Tateyama.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, S Papua New Guinea.

***Cyphastrea japonica***

Yabe and Sugiyama, 1932

Uncommon except at Tanegashima. Coralla from mainland Japan have larger corallites than usual for Ryukyu I. coralla.

Taxonomic note: The name *japonica* has been incorrectly used for *C. decadia* by Veron *et al.* (1977) and all subsequent taxonomic accounts of *Cyphastrea*. *Cyphastrea chalcidicum tanabensis* Yabe and Sugiyama, 1932 appears to be a synonym of this species.

**TAXONOMIC REFERENCES:** Veron (1991).

**TYPE LOCALITY:** Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Japan.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Kushimoto, Shirahama, Izu.

**Additional Central Indo-Pacific records:** none.

***Cyphastrea ocellina***

(Dana, 1864)

Rare on the GBR, common in shallow exposed biotopes of Japan. As far as is known there are no taxonomically significant variations throughout the recorded Central Indo-Pacific distribution range

**TAXONOMIC REFERENCES:** Wijsman-Best (1980).

TYPE LOCALITY: Hawaii.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Indonesia to Hawaii.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: N and Central GBR (not previously recorded).

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is.

Additional Central Indo-Pacific records: Indonesia, Marshall Is.

*Cyphastrea* sp. W Australia

Recorded from two specimens, both primarily characterised by the presence of a distinct first cycle of septa in most corallites.

TAXONOMIC REFERENCE: Veron and Marsh (1988).

DISTRIBUTION:

Indo-Pacific longitudinal distribution: W Australian only.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: Scott Reef, Ningaloo Reef Tract.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: none.

*Cyphastrea microphthalmia*

(Lamarck, 1816)

Generally common throughout the recorded Central Indo-Pacific distribution range except Vanuatu where it is uncommon. Especially common in exposed biotopes of the Ryukyu Is., but generally uncommon in Japanese mainland locations. Coralla show no taxonomically significant geographic variation.

TAXONOMIC REFERENCES: Veron *et al.* (1977), Wijsman-Best (1980), Veron (1986a).

TYPE LOCALITY: "Indian Ocean".

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Red Sea and The Gulf to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs, Lord Howe Is.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Port Gregory.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Tateyama.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, Vanuatu.

### *Cyphastrea decadia*

Moll and Borel Best, 1984

Generally uncommon or rare throughout the Central Indo-Pacific distribution range. There may be substantial differences between GBR, Indonesian, Philippines and Japanese coralla. The former and latter are similar, as are Indonesian and Philippine coralla. These may be geographic subspecies, but they are not contiguous.

**Taxonomic note:** This species has previously been called *Cyphastrea japonica* by Veron *et al.* (1977) and subsequent authors.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Wijsman-Best (1980), Veron (1986a) (all as *C. japonica*).

**TYPE LOCALITY:** Indonesia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Vanuatu.

## *Genus Echinopora*

Lamarck, 1816

### *Echinopora lamellosa*

(Esper, 1775)

Generally common throughout the recorded Central Indo-Pacific distribution range and may form very large colonies at Tanegashima as well as tropical locations. Presently much less common at Cocos (Keeling) Atoll than formerly. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, Vanuatu.

### *Echinopora ashmorensis*

Veron, 1990

A rare species, primarily characterised by having a tubular rather than a lamellar growth form. Originally considered an unusual ecomorph of *E. lamellosa* (Veron, 1986) as corallite characters are very similar and the latter sometimes develops tubular 'chimneys'. However, the two species occur together at Ashmore Reef and the Philippines, where they are readily distinguished.

**TAXONOMIC REFERENCES:** Veron (1986a) p. 529 fig. 4 (as *E. lamellosa*), Veron (1991a).

**TYPE LOCALITY:** Ashmore Reef, W Australia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia to the Philippines.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** Ashmore Reef.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** none.

*Echinopora pacificus*

Veron, 1990

Generally uncommon throughout the recorded distribution range. The distribution range is likely to be wider than recorded below.

**TAXONOMIC REFERENCES:** Veron (1990c, 1991a).

**TYPE LOCALITY:** Ryukyu Is., Japan.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Central GBR.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** none.

*Echinopora gemmacea*

(Lamarck, 1816)

Common on the GBR and the Ryukyu Is., uncommon in Vanuatu, recorded only from Cartier and Ashmore Reefs of W Australia, where it is rare.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** "Indian Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

W Australia: Ashmore Reef, Cartier Reef.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Vanuatu.

*Echinopora hirsutissima*

(Edwards and Haime, 1849)

Rare in W Australia and Vanuatu. Shows little taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** "Indian Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: Torres Strait, N and Central GBR.

W Australia: Ashmore Reef, Scott Reef, Dampier Archipelago.

Philippines - Japan: Philippines.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, Vanuatu.

*Echinopora horrida*

Dana, 1846

Generally uncommon, but may form large monospecific stands in reef lagoons of E and W Australia.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Saudi Arabia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Dampier Archipelago, Pilbara coast, Ningaloo Reef Tract.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Indonesia, Vanuatu.

### *Echinopora mammiformis*

(Nemenzo, 1959)

Generally common on the GBR, in Vanuatu and Scott Reef of W Australia, rare in the Ryukyu Is., but occasionally forms large colonies in protected lagoons. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Saudi Arabia and W Australia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** Scott Reef.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Malaysia, Indonesia, Vanuatu.

### *Genus Moseleya*

Quelch, 1884

A well-defined monospecific genus which shows affinities with both the Faviidae and the Trachphylliidae.

### *Moseleya latistellata*

Quelch, 1884

Usually uncommon and restricted to lower reef slopes except on the NW coast where it sometimes occurs intertidally. Has little environment- correlated variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

TYPE LOCALITY: Torres Strait.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia and W Australia to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Torres Strait, N and Central GBR.

**W Australia:** Kimberley coast, Dampier Archipelago, Pilbara coast,  
Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Vietnam, Malaysia.

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16

*Family*

*Trachyphylliidae*

Verrill, 1901

Only one extant genus is included in this family, which is closely related to the Faviidae in general and *Moseleya* in particular.

Taxonomic note: *Wellsophyllia radiata* Pichon, 1980 is considered to be a synonym of *Trachyphyllia geoffroyi* after Veron and Hodgson (1989). It was considered a valid species of *Trachyphyllia* by Borel Best and Hoeksema (1987) and a doubtful species of *Trachyphyllia* by Veron and Marsh (1988).

*Genus Trachyphyllia*

Audouin, 1826

*Trachyphyllia geoffroyi*

(Audouin, 1826)

Large colonies only occur in very protected, turbid environments and these may have distinctive skeletal characters and/or colours which are seldom found in other biotopes. Common in isolated pockets of the GBR, rare in Japan. Coralla from the recorded Central Indo-Pacific show no taxonomically significant variation.

**TAXONOMIC REFERENCES:** Veron *et al.* (1977), Veron (1986a).

**TYPE LOCALITY:** Red Sea.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to New Caledonia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait,

N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Kimberley coast, Lacedepe Is., Dampier Archipelago, Pilbara coast.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, N Papua New Guinea, New Caledonia.



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17

*Family*

*Caryophylliidae*

Gray, 1847

Six hermatypic Indo-Pacific genera are recognised in this otherwise ahermatypic family. A seventh genus, *Eusmilia*, is restricted to the West Indies. Most species display relatively little environment-correlated or geographic variation. The family is represented by one species at Christmas I. (Indian Ocean) and not at all at Cocos (Keeling) Atoll.

*Heterocyathus* is a solitary, free-living genus that is mostly ahermatypic. It has a superficial similarity to *Heteropsammia*, with which it often co-occurs.

Taxonomic note: *Nemenzophyllia* Hodgson and Ross, (1981) was included in Veron (1986) as a doubtful genus, but its one species, *N. turbida* Hodgson and Ross, 1981, is now included in *Plerogyra*.

*Genus Euphyllia*

Dana, 1846

Two species groups of *Euphyllia* cannot be identified from skeletons alone. The first, originally described as *Euphyllia fimbriata*, contains two species: *E. divisa* and *E. ancora*. The second contains four species: *Euphyllia glabrescens*, *E. paradivisa*, *E. paraancora* and *E. paraglabrescens*.

*Euphyllia glabrescens*

(Chamisso and Eysenhardt, 1821)

Although one of the most common *Euphyllia*, it is generally uncommon in the recorded Central Indo-Pacific, especially W Australia. Indistinguishable from *E. paradivisa*, *E. paraancora* and *E. paraglabrescens* by skeletal characters alone. There is almost no geographic and little environment-correlated variation where studied. Elsewhere there are colour variations, eg. in the Marshall Is., tentacles are a mustard yellow instead of grey with greenish or white tips as they are in the Central Indo-Pacific.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Radack Arch.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Marshall Is. and Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Euphyllia paradivisa*

Veron, 1990

Rare, probably endemic to the Philippines and adjacent countries. Polyps are extended during the day and have branching tentacles identical in appearance to those of *E. divisa* (illustrated, Veron, 1986a pp. 548 and 549). Indistinguishable from *E. glabrescens*, *E. paraancora* and *E. paraglabrescens* by skeletal characters alone.

**TAXONOMIC REFERENCES:** Veron (1990c).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** none.

*Euphyllia paraancora*

Veron, 1990

Rare. Polyps are extended during the day and have anchor-shaped tentacle ends identical in appearance to those of *E. ancora* (illustrated, Veron, 1986a, pp. 547). As with *E. ancora*, some tentacles branch, but they do not integrate with those of *E. paradivisa*. Indistinguishable from *E. glabrescens*, *E. paradivisa* and *E. paraglabrescens* by skeletal characters alone.

TAXONOMIC REFERENCES: Veron (1990c).

TYPE LOCALITY: Philippines.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Philippines to S Papua New Guinea.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: S Papua New Guinea.

W Australia: not found.

Philippines - Japan: Philippines.

Additional Central Indo-Pacific records: S Papua New Guinea.

*Euphyllia paraglabrescens*

Veron, 1990

Recorded only from south of Ojioya Port, Tanegashima I., where it is one of the dominant species at 0-5 m depth. Tentacles are short and bubble-like, superficially resembling the vesicles of *Plerogyra*. Indistinguishable from *E. glabrescens*, *E. paradivisa* and *E. paraancora* by skeletal characters alone.

TAXONOMIC REFERENCES: Veron (1990c).

TYPE LOCALITY: Tanegashima, Japan.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Japan only.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Tanegashima.

Additional Central Indo-Pacific records: none.

*Euphyllia cristata*

Chevalier, 1971

Much less common and widespread than *E. glabrescens*. Shows little variation except in colony size.

TAXONOMIC REFERENCES: Chevalier (1971), Veron and Pichon (1980), Veron (1986a).

TYPE LOCALITY: New Caledonia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia and W Australia to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait,

N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** Rowley Shoals, Dampier Arch.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia, Taiwan, Vanuatu.

*Euphyllia divisa*

Veron and Pichon, 1980

Common in a few restricted tropical biotopes, but very common only at the Houtman Abrolhos Is. Shows no taxonomically significant skeletal variation but there are geographic differences in the colour of the polyp and, sometimes, in the shape of the tentacle tips and degree and tentacle branching. All skeletal variation appears to be environment-correlated; colonies from shallow, exposed biotopes are more heavily calcified than those from deep or turbid water. Indistinguishable from *E. ancora* by skeletal characters alone.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Singapore to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait,

N and Central GBR, Pompey and Swain Reefs.

**W Australia:** Dampier Arch., Houtman Abrolhos Is.

**Philippines - Japan:** Philippines, Yaeyama Is.

**Additional Central Indo-Pacific records:** Singapore, Malaysia, Indonesia, N Papua New Guinea, S Papua New Guinea.

*Euphyllia ancora*

Veron and Pichon, 1980

Generally uncommon throughout the recorded distribution range. Shows no taxonomically significant skeletal variation but considerable variation occurs in the shape and colour of the tentacle tips. In shallow water, the tips are elongate with scroll-shaped ends and white borders. In deeper or more turbid biotopes, the tips are more kidney-shaped and uniform in colour. There appears to be minor geographic variation in this pattern. Indistinguishable from *E. divisa* by skeletal characters alone.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Chagos and Indonesia to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama, Tateyama.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Indonesia, Taiwan, N Papua New Guinea, S Papua New Guinea.

### *Euphyllia yaeyamaensis*

(Shirai, 1980).

Uncommon and shows no taxonomically significant skeletal variation or any colour variation.

**TAXONOMIC REFERENCES:** Shirai (1980) (as *Botryphyllia yaeyamaensis*), Veron (1991a).

**TYPE LOCALITY:** Ryukyu Is.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea.

**W Australia:** not found.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Vanuatu.

## *Genus Catalaphyllia*

Wells, 1971

### *Catalaphyllia jardinei*

(Saville-Kent, 1893)

Generally uncommon throughout the recorded distribution range. Occurs in localised areas of Honshu, Japan; not found elsewhere in Japan. These colonies have the same general appearance as those from the Philippines and Australia, with the same grey-green tentacles with pink tips. There are, however, minor colour and ecological differences between Japanese and Australian colonies indicating a geographic sub-species.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Aldabra to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Torres Strait, N and Central GBR, Capricorn and Bunker Reefs.

**W Australia:** Ashmore Reef, Kimberley coast, Dampier Arch.

**Philippines - Japan:** Philippines, Kushimoto, Shirahama.

**Additional Central Indo-Pacific records:** Malaysia, Indonesia, N Papua New Guinea.

## *Genus Plerogyra*

Edwards and Haime, 1848

A single species, *P. sinuosa*, occurs throughout most of the geographic range of this genus. Like most other Caryophylliidae, *Plerogyra* species are most commonly found in turbid water, but their occurrence is often unpredictable.

### *Plerogyra simplex*

Rehberg, 1892

There are no taxonomically significant differences between coralla from the Philippines and Vanuatu, otherwise this species is little studied.

**TAXONOMIC REFERENCES:** Rehberg (1892).

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FAMILY CARYOPHYLLIIDAE

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**TYPE LOCALITY:** New Ireland.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Malaysia to Samoa.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines.

**Additional Central Indo-Pacific records:** Malaysia, Vietnam, Indonesia, Vanuatu.

*Plerogyra eurysepta*

Nemenzo, 1960

Uncommon and little studied throughout the recorded distribution range.

**TAXONOMIC REFERENCES:** Nemenzo (1960), Veron and Hodgson (1989).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to Japan.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Amami Is.

**Additional Central Indo-Pacific records:** none.

*Plerogyra sinuosa*

(Dana, 1846)

By far the most common and widespread of the *Plerogyra* species although generally uncommon and rare in Japan. Usually found under overhangs and other such places where light availability is low, but sometimes occurs in exposed places in Australian NW Shelf reef lagoons. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** "East Indies".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea to Marshall and Line Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.  
**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

***Plerogyra turbida***

(Hodgson and Ross, 1981)

Colonies are flabello-meandroid with smaller polyps than *P. sinuosa*. Found only in biotopes with partially muddy substrates and, so far as is recorded, is rare.

**TAXONOMIC REFERENCES:** Hodgson and Ross (1981) (as *Nemenzophyllia turbida*).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Indonesia.

***Genus Physogyra***

Quelch, 1884

Two species have been recorded from the Central Indo-Pacific. Like *Plerogyra*, this genus most commonly occurs in turbid water.

***Physogyra lichtensteini***

(Edwards and Haime, 1851)

The most common and widely distributed *Physogyra* but generally uncommon throughout the recorded Central Indo-Pacific distribution range. Usually found under overhangs and in other such places where light availability is low, but, like *Plerogyra sinuosa*, sometimes occurs in exposed biotopes in NW Shelf reef lagoons, where it grow into

unusually large colonies. Generally uncommon in Japan and the Philippines where colonies have a similar range of variation as in Australia except that vesicles are often tapered or tubular rather than spherical or ovoid. Coralla show no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** "East Indies".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs.

**W Australia:** NW Shelf Reefs, Dampier Arch., Ningaloo Reef Tract.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

### *Physogyra exerta*

Nemenzo and Ferraris, 1982

Rare. Coralla have large valleys with very exert septa. Living colonies have very large vesicles. This species is not easily distinguished from *P. lichensteinii* except where both occur together.

**TAXONOMIC REFERENCES:** Nemenzo and Ferraris (1982), Veron and Hodgson (1989).

**TYPE LOCALITY:** Philippines.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia and W Australia to Philippines.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** Indonesia.

## *Genus Gyrosmilia*

Edwards and Haime, 1851

Restricted to the western Indian Ocean except for Ishigaki I (Ryukyu Is.) where it is probably no longer extant.

### *Gyrosmilia interrupta*

(Ehrenberg, 1834)

A single corallum collected at Ishigaki I., Yaeyama Is. is the only presently existing record of this genus in the western Pacific.

TAXONOMIC REFERENCES: Veron (1986a).

TYPE LOCALITY: Red Sea.

DISTRIBUTION:

Indo-Pacific longitudinal distribution: Red Sea to Japan.

Central Indo-Pacific latitudinal distribution:

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Yaeyama Is.

Additional Central Indo-Pacific records: none.

## *Genus Montigyra*

Matthai, 1928

This distinctive genus is recorded from a single specimen.

### *Montigyra kenti*

Matthai, 1928

Recorded from a single corallum from the Lapepede Is., NW Australia. This species is very rare or extinct as, even at its type locality, it has been looked for unsuccessfully.

TAXONOMIC REFERENCES: Matthai (1928), Veron (1986a).

TYPE LOCALITY: Lapepede Is. (NW Australia).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Type locality only.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: Lacepede Is.

Philippines - Japan: not found.

**Additional Central Indo-Pacific records:** none.



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18

*Family*

*Dendrophylliidae*

Gray, 1847

Contains three hermatypic genera which, superficially, have little in common.

*Psammoseris* is a solitary, free-living genus that is probably ahermatypic. One species, *P. hemispherica*, has been recorded from W Australia.

*Genus Turbinaria*

Oken, 1815

Has distinctive distribution patterns as most species are much more abundant, and form much bigger colonies, in non-reefal habitats of high latitude locations. This pattern is repeated on both Australian coasts: in the E *Turbinaria* is particularly abundant around the Solitary Is. and Lord Howe I., and in the W, around SW offshore islands E to Researche Arch. In general, there are greater similarities between coralla of most species from high latitude locations on the E and W coasts than there are between high and low latitude locations on the same coast. *Turbinaria* is much less abundant in Japan than Australia, but is also relatively common in higher (mainland) latitudes.

Most *Turbinaria* species exhibit very great environment-correlated variation and lack conservative skeletal characters which can make some species especially difficult to separate.

*Turbinaria peltata*

(Esper, 1794)

Conspicuous and sometimes common in tropical Australian reefs (especially E coast) and high latitude non-reefal locations. Uncommon at Vanuatu. The largest colonies, reaching 2-3m diameter, are in non-reefal habitats. Not found in the Yaeyama Is., rare in the Okinawa and Amami Is., generally uncommon at Tanegashima. Very common in turbid inshore biotopes of the GBR. Colony shape varies from plate-like to columnar according to environmental conditions. Polyps are characteristically extended during the day; the colour is a uniform grey. There is little or no taxonomically significant geographic variation in these characters.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** "China Sea".

*Turbinaria frondens*

(Dana, 1846)

Very common in tropical reefs as well as most non-reef temperate locations. Has a very great range of growth including flat explanate plates, upright plates, highly convoluted fronds and may even be columnar. This range is clearly associated with depth, colonies being convoluted in shallow water and explanate in deeper water. Species characteristics, including the presence of elongate corallites, are usually best developed in coralla from temperate locations. Both environment-correlated and latitude-correlated characters are identical on the E and W coasts of Australia. Rare in Japan except at Tanegashima, where it is generally uncommon. In both Japan and the Philippines, highly convoluted colonies have not been observed. Otherwise, coralla are similar to those of the GBR.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Fiji.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Saudi Arabia and E Africa to Samoa and Cook Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swaine Reefs, Capricorn and Bunker Reefs, Flinders Reef, Moreton Bay, Elizabeth and Middleton Reefs, Lord Howe I., N coastal New South Wales, Solitary Is.,

**W Australia:** NW Shelf Reefs, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Geographe Bay, thence E to Duke of Orleans Bay on the S coast.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Shirahama.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Turbinaria* sp. W Australia

An indistinct and little studied species close to *T. frondens*.

**TAXONOMIC REFERENCE:** Veron and Marsh (1988).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia only.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** The Gulf and E Africa to Samoa.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is.

**W Australia:** Ashmore Reef, Scott Reef, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Geographe Bay.

**Philippines - Japan:** Philippines, Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Malaysia, Hong Kong, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

*Turbinaria patula*

(Dana, 1846)

Uncommon throughout the recorded Central Indo-Pacific distribution range except in some high latitude locations of E (but not W) Australia. Sometimes common at Vanuatu.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Thailand and W Australia to Vanuatu and ?Fiji.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Moreton Bay, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is.

**W Australia:** Kimberley coast, Broome, Dampier Arch., Pilbara coast.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Vietnam, Vanuatu.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: Dampier Arch., Pilbara coast, Shark Bay region.

Philippines - Japan: not found.

Additional Central Indo-Pacific records: none.

***Turbinaria mesenterina***

(Lamarck, 1816)

This is probably the most common Australian *Turbinaria*, occurring in most reefal biotopes and extending to high non-reefal latitudes, where it is especially common. Probably the most common coral of the Solitary Is. on the E Australian coast and Geographe Bay on the W coast, where colonies form tiers of plates up to 3m high and 3m diameter. Coralla from shallow water are usually very highly convoluted, whereas those from deeper water are (like *T. frondens*) usually explanate. These environment-correlated growth-form variations occur at all latitudes and may well mask any taxonomically significant geographic variation in the species or the possible presence of geographic sub-species or sibling species. Uncommon in Japan and the Philippines.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** "Indian Ocean".

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Red Sea and E Africa to Marshall Is. and French Polynesia.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Coral Sea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Solitary Is., coastal New South Wales S to Sydney.

W Australia: Ashmore Reef, Rowley Shoals, Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coast S to Geographe Bay, thence E to Recherche Arch. on the S coast.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Malaysia, Hong Kong, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

## *Turbinaria reniformis*

Bernard, 1896

Has a similar, although less extreme range of growth forms as *T. mesenterina*. Less common than *T. mesenterina* in the tropics and at the Houtman Abrolhos Is., but is common at more southerly locations and it is the dominant species at the Recherche Archipelago. Common at Vanuatu. Rare at Cocos (Keeling) Atoll, but forms very extensive monospecific stands in one biotope. Uncommon in Japan, but may form extensive monospecific stands in deeper, protected biotopes. The same yellow-green colouration and the same environment-correlated growth-form variations occur throughout the recorded Central Indo-Pacific distribution range.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Saudi Arabia, The Gulf and E Africa to Tonga and Cook Is.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs.

**W Australia:** Ashmore Reef, Scott Reef, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Geographe Bay, thence E to Recherche Arch. on the S coast.

**Philippines - Japan:** Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu.

**Additional Central Indo-Pacific records:** Thailand, Singapore, Cocos (Keeling) Atoll, Vietnam, Indonesia, Taiwan, N Papua New Guinea, Vanuatu.

## *Turbinaria irregularis*

Bernard, 1896

Generally uncommon in Japan.

**TAXONOMIC REFERENCES:** Bernard (1896).

**TYPE LOCALITY:** Mauritius.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Mozambique to Japan.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: not found.

W Australia: not found.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Amakusa Is., Kushimoto, Shirahama.

Additional Central Indo-Pacific records: none.

***Turbinaria stellulata***

(Lamarck, 1816)

Generally uncommon throughout the known Central Indo-Pacific distribution range. Colonies are submassive, encrusting or explanate, these growth forms varying with the size (presumably age) of the colony and depth. Lack of conservative skeletal characters, however, makes this species difficult to define and there remains a possibility that it is more a species complex than a single species. There appears to be little or no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** ?Saudi Arabia and E Africa to Vanuatu and ?Marshall Is.

**Central Indo-Pacific latitudinal distribution:**

S Papua New Guinea - E Australia: S Papua New Guinea, Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef.

W Australia: NW Shelf Reefs, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is., SW coastal locations.

Philippines - Japan: Philippines, Yaeyama Is., Okinawa Is., Amami Is., Tanegashima, Tosashimizu, Kushimoto, Shirahama.

Additional Central Indo-Pacific records: Thailand, Malaysia, Vietnam, Indonesia, N Papua New Guinea, Vanuatu.

## *Turbinaria bifrons*

Brüggemann, 1877

Usually rare on the tropical E Australian coast and uncommon on the W coast. A distinctive species displaying little environment-correlated and no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Unrecorded.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Indonesia and W Australia to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Torres Strait, N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef.

**W Australia:** Kimberley coast, Broome, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is., SW coastal locations S to Port Gregory.

**Philippines - Japan:** not found by the present author but recorded from the Ryukyu Is. by previous authors.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia.

## *Turbinaria conspicua*

Bernard, 1896

Common only at Dampier Arch. Shows little environment-correlated and no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron (1986a).

**TYPE LOCALITY:** Shark Bay (W Australia).

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W Australia only.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** not found.

**W Australia:** Kimberley coast, Dampier Arch., Shark Bay region, Ningaloo Reef Tract, Houtman Abrolhos Is., SW coastal locations S to Port Denison.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** none.

## *Turbinaria radicalis*

Bernard, 1896

Rare in tropical locations, much more common in temperate locations of E Australia; recorded from a single specimen from W Australia (Houtman Abrolhos I.). Shows little environment-correlated or taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Thailand to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** Torres Strait, N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Flinders Reef, Elizabeth and Middleton Reefs, Lord Howe I., Solitary Is., N New South Wales .

**W Australia:** Houtman Abrolhos Is.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Vietnam, Indonesia.

## *Turbinaria heronensis*

Wells, 1958

Unlike most Australian *Turbinaria*, this species is probably restricted to reefal habitats, but is much more common on temperate reefs than tropical ones. *Turbinaria cylindrica* Nemenzo could be a separate species closely related to *T. heronensis*: corallites are smaller and the degree of fusion between them is greater than normal for GBR *T. heronensis*.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** GBR.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** Philippines to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** N and Central GBR, Pompey and Swain Reefs, Capricorn and Bunker Reefs, Elizabeth and Middleton Reefs.

**W Australia:** not found.

**Philippines - Japan:** Philippines.

**Additional Central Indo-Pacific records:** none.

## *Genus Duncanopsammia*

Wells, 1936

This is a monospecific genus which combines many of the characters of hermatypic and ahermatypic Dendrophylliidae.

### *Duncanopsammia axifuga*

(Edwards and Haime, 1848)

Usually restricted to relatively deep reefal and non-reefal habitats. Blue-grey polyps are extended during the day. Shows little environment-correlated and no taxonomically significant geographic variation.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Western Australia.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** W to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** S Papua New Guinea, Torres Strait, N and Central GBR.

**W Australia:** Kimberley coast, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Shark Bay region, Houtman Abrolhos Is.

**Philippines - Japan:** not found.

**Additional Central Indo-Pacific records:** Vietnam, S Papua New Guinea.

## *Genus Heteropsammia*

Edwards and Haime, 1848

### *Heteropsammia cochlea*

(Spengler, 1781)

The small free-living colonies occur only on sandy substrates in inter-reef regions. Colonies primarily vary according to how many polyps are present, this character appearing to be environment- correlated. Colonies from equatorial countries which have more than three polyps may be a distinct species, but this remains unstudied.

**TAXONOMIC REFERENCES:** Veron and Pichon (1980), Veron (1986a).

**TYPE LOCALITY:** Bay of Bengal.

**DISTRIBUTION:**

**Indo-Pacific longitudinal distribution:** The Gulf and E Africa to E Australia.

**Central Indo-Pacific latitudinal distribution:**

**S Papua New Guinea - E Australia:** N and Central GBR, Capricorn and Bunker Reefs, Flinders Reef, Solitary Is., N and S coastal New South Wales.

**W Australia:** Port Hedland, Dampier Arch., Pilbara coast, Ningaloo Reef Tract, Houtman Abrolhos Is., Port Gregory.

**Philippines - Japan:** Philippines, Okinawa Is.

**Additional Central Indo-Pacific records:** Thailand, Vietnam, Indonesia, N Papua New Guinea.

*Distribution of  
Genera Worldwide*



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19

# *Generic Distributions: Data Sources and Maps*

The following maps show the world-wide distribution of all hermatypic genera. For the central Indo-Pacific, the number of species in those genera is also indicated.

Genera are in alphabetical order.

### ***Data sources:***

The following are the secondary and tertiary data sources used in this volume. These records are supplemented by many other data sources as indicated in Chapter 2 and Acknowledgements. Data are used in this volume to assist in the compilation of W to E distribution ranges of species (above) and generic distribution maps (below). These references are by no means exhaustive and do not include broad-ranging taxonomic references or references to primary data sources (p. 17). References which have not got a major taxonomic or biogeographic component, or are superseded, are also not listed.

Generic-level data have also been compiled by Wells (1954 and unpublished), Rosen (1971a), Scheer (1971) and Veron (1986a). These compilations have all been re-assessed in this study. They are included below, where they remain a primary data source.

Some localities are recorded under more than one name; all are indexed.

ADDU ATOLL: Wells and Davies (1966); AFRICA (SOUTH) : Boshoff (1981); Crossland (1948); AFRICA (WEST): Thiel (1928); Chevalier (1966a,b), Laborel (1974); Boekschoten and Borel Best (1988); AITUTAKI, COOK IS.: Stoddart and Pillai (1973); ALDABRA: Rosen (1979); AMIRANTES: Rosen (1971a); ANDAMAN IS.: Reddiah (1977); Wafar (1986); ARAKAN COAST, BURMA: Rosen (1971a); ASCENSION I.: Laborel (1974); AUSTRAL IS.: Chevalier (1979, 1980, 1981); Faure (1985, pers. comm.); Pichon (1985); BAHAMAS: Vaughan (1916); Squires (1958); Walton Smith (1971); Wells (1973); Davis (1982); BARBADOS: Lewis (1960); Veron (unpublished data, 1992); BELIZE: Cairns (1982); Veron (unpublished data, 1992); BERMUDA: Laborel (1966); Wilson (1969); Walton Smith (1971); Dodge *et al.* (1982); Cavalierre *et al.* (1983); Cairns *et al.* (1986); BRAZIL: Laborel (1967; 1970); Belem *et al.* (1986), Leao *et al.* (1988), Pitombo *et al.* (1988); F. Amaral (pers. comm.); CALIFORNIA (GULF OF): Durham (1947); Durham and Barnard (1952); Squires (1959);

CAMEROONS: Laborel (1974); CANARY IS.: Laborel (1974); CAPE VERDE IS.: Laborel (1974); Boekschoten and Borel Best (1988); CARGADOS CARAJOS: Rosen (1971a); CHAGOS ARCHIPELAGO: Rosen (1971b); Dinesen (1977); Sheppard (1981, 1987b); CHRISTMAS I. (INDIAN OCEAN): Bernard (1900); Veron (1990b); CLIPPERTON I.: Hertlein and Emerson (1957); Wells (1983); COCOS I.: Durham (1962, 1966); Bakus (1975); Hertlein (1963); Wells (1983); J. Cortés (pers. comm.); COLOMBIA (ATLANTIC COAST): Pfaff (1969); Antonius (1972); Erhardt (1974); Erhardt and Meinel (1975); Erhardt and Werding (1975); COLOMBIA (PACIFIC COAST): Birkeland *et al.* (1975); Glynn *et al.* (1982); Cantera (1983); Prahl and Mejia (1985); Cantera *et al.* (1989); Cortés (pers. comm.); COMOROS: Rosen (1971a); COSTA RICA (ATLANTIC COAST): Cortés and Guzman (1985); COSTA RICA (PACIFIC COAST): Cortés and Risk (1984); Cortés and Murillo (1985); Cortés (1986); Guzman and Cortés (1989); CUBA: Zlatarski and Estalella (1982); DJIBOUTI: Gravier (1907, 1911); Vaughan (1907b); DOMINICA: Geraldes (1976); Geraldes and Bonnelly (1978); EASTER I.: Wells (1972, 1983); Cea and Di Salvo (1982); ECUADOR: Wells (1963, 1983); FANNING I.: Vaughan (1918); Maragos (1974); FIJI: Hoffmeister (1925, 1945); Wells (1954); Phipps and Preobrazhensky (1977); Salvat *et al.* (1977); FLORIDA (SOUTH): Walton Smith (1971); FLORIDA MIDDLE GROUNDS: Vaughan (1916); Hopkins *et al.* (1977); FLOWER GARDEN BANKS: Tresslar (1974); Bright *et al.* (1984); Viada (1980); FRENCH ANTILLES: Chassaing *et al.* (1978); FUNAFUTI, TUVALU: Whitelegge (1898); Hinde (1904); GALAPAGOS IS.: Wells (1982, 1983); Durham (1962, 1966); Glynn and Wellington (1983); GAVESHANI BANK: Wafar (1986); GHANA: Laborel (1974); GOLD COAST: Laborel (1974); GUAM: Randall (1973); Randall and Myers (1983); HAINAN AND SOUTH CHINA COAST: Zou (1975); Zou *et al.* (1975, and subsequent taxonomic notes); Liang (1985); HAWAII: Studer (1901); Vaughan (1907a); Pillai and Scheer (1973); Maragos (1977, pers. comm.); Grigg (1981); Veron (unpublished data, 1988, 1992); HONDURAS: Tortora and Keith (1980); INDIA (SOUTHERN MAINLAND): Pillai (1967, 1969, 1971a, b, 1972); Scheer (1971); Mergner and Scheer (1974); Wafar (1986, pers. comm.); INDONESIA: Umbgrove (1939, 1940); Pillai and Scheer (1974); Umbgrove (1939); Wijsman-Best (1974); Moll and Borel Best (1984); Borel Best and Hoeksema (1987); Borel Best *et al.* (1989); IVORY COAST: Laborel (1974); JAMAICA: Goreau (1959); Wells (1973b); Goreau and Wells (1967); Wells and Lang (1973); Veron (unpublished data, 1992); JOHNSTON ATOLL: Maragos and Jokiel (1986); KANTON I., PHOENIX IS.: Maragos and Jokiel (1978); KENYA: Lemmens and Smeets (1987), Lemmens (in press), L. Didham (pers. comm.); KERMADEC IS.: Vaughan (1917); Wells (1954); Brook (1989); KOREA: Song (1982, 1991); KURE ATOLL: Dana (1971); KUTCH (GULF OF): Gideon *et al.* (1957); Pillai *et al.* (1980); Wafar (1986); KUWAIT: Downing (1988); Hodgson and Carpenter (in press); LAKSHADWEEP IS.: Pillai (1971a); Wafar (1986); LAYSAN I.: Studer (1901); Vaughan (1907a); MADAGASCAR: Pichon (1964, 1971, 1978); MALACCA STRAITS: Pillai and Scheer (1974); MALAYSIA (EAST COAST): Searle (1956); Green *et al.* (1979); Betterton (1981); Wood and Tan (1987); Johnston (MS); MALDIVE IS.: Gardiner (1904, 1905); Scheer (1969, 1972); Wells and Davies (1966); Pillai (1972); Pillai and Scheer (1976); MANIHIKI, COOK IS.: Stoddart and Pillai (1973); McCann (1974); G. Paulay pers. comm.; MARQUESAS IS.: Chevalier (1978, 1979); MARSHALL IS.: Wells (1954); Tracey *et al.* (1948); Veron (unpublished data, 1986); MARTINIQUE: Battistini (1978); MAURITIUS: Faure (1977); McKEAN I., PHOENIX IS.: Dana (1979); MERGUI ARCHIPELAGO, BURMA: Harrison and Poole (1909); Wells (1954); Rosen (1971a); Pillai (1972); MEXICO (ATLANTIC COAST): Rigby and

McIntyre (1966); Rannefeld (1972); Chavez *et al.* (1970a,b); Rezak *et al.* ((1985), MIDWAY ATOLL: Wells (1982); MINICOY: Pillai (1971); MOZAMBIQUE AND ADJACENT AREAS: Harrison and Poole (1909); Wijsman-Best *et al.* (1980); Boshoff (1981); NATAL: Crossland (1948); Wijsman-Best *et al.* (1980); NETHERLANDS ANTILLES: Bak (1977); Roos (1964, 1971); NEW CALEDONIA: Matthai (1923); Woodhead and Weber (1969); Chevalier (1971, 1975); Wijsman-Best (1972); NICOBAR IS.: Pillai (1972); Scheer and Pillai (1974); Reddiah (1977); Wafar (1986); OMAN (GULF OF): Sheppard and Salm (1988); Sheppard and Sheppard (1991); PALAU: Yabe *et al.* (1936); Eguchi (1935, 1938); Hatai (1940); Yabe and Sugiyama (1941); PANAMA (ATLANTIC COAST): Cubit and Williams (1983); PANAMA (PACIFIC COAST): Squires (1959); Porter (1972); Dana (1975); Wells (1983); Cortés (pers. comm.); PAPUA NEW GUINEA (N COAST): Veron (unpublished data, 1974); Claerebout (MS); PITCAIRN I. GROUP: Rehder and Randall (1975); Paulay (1989, pers. comm.); S. Blake and J. Pandolfi (pers. comm.); PUERTO RICO: Vaughan (1902); Armstrong (1980); RAROTONGA, COOK IS.: Stoddart and Pillai (1973); RED SEA (CENTRAL): Scheer (1967); Head (1980); Sheppard (1985, 1987); Sheppard and Sheppard (1985); Schumacher and Mergner (1985); RED SEA (NORTHERN): Crossland (1935, 1938); Loya (1972); Scheer (1971); Loya and Slobodkin (1971); Scheer and Pillai (1983); Schuhmacher and Mergner (1985); Sheppard (1987a); Sheppard and Sheppard (1991); RED SEA (SOUTHERN): Rossi (1954); Scheer (1967, 1971); Sheppard (1985b, 1987a); Sheppard and Sheppard (1985, 1991); Antonius *et al.* (1990); REUNION AND MASCARENE IS.: Faure (1977); Bouchon (1981); RODRIGUEZ: Faure (1977); SABAH, MALAYSIA: Wood and Tan (1987); Morris (1978); SAINT HELENA: Laborel (1974); SAMOA: Studer (1901); Hoffmeister (1925); Wells (1954); Pillai and Scheer (1973); Lamberts (1983); SENEGAL: Laborel (1974); SEYCHELLES: Rosen (1972 and pers. comm.) Pillai *et al.* (1973); Wijsman-Best *et al.* (1980); Stoddart (1984); SIERRA LEONE: Laborel (1974); SINGAPORE: Studer (1881); Wells (1954); Purchon (1957); Chou and Teo (1985); Koh and Chou (1989); SOCOTRA AND ABD-EL-KURI: Scheer (1964, 1971); Sheppard and Sheppard (1991); SOCIETY IS.: Crossland (1928, 1935); Hoffmeister (1929); Boschma (1929); Chevalier (1979, 1981); Chevalier and Kuhlmann (1983); Pichon (1985); SOLOMON IS.: Weber (1973); SOMALIA: Vaughan (1907b) Rosen (in prep.); SOUTH CHINA SEA: Bassett-Smith (1890); Zou (1978); Liang (1985); Latypov (1986); Jing-Fen (1985); SRI LANKA: Ridley (1883); Ortmann (1889); Mergner and Scheer (1974); Rajasuriya (1986); TAIWAN: Kawaguti (1953); Jones *et al.* (1972); Randall and Cheng (1980); Dai (1989, 1991); Hoesema and Dai (1991); TANZANIA (DAR-ES-SALAAM): Ortmann (1892); von Marenzeller (1901); Hamilton and Brakel (1984); THAILAND (GULF OF): Campbell (1980); Srithunya *et al.* (1981); Latypov (1986); Sakai *et al.* (1986); Ditlev (1976); THAILAND (WEST COAST): Ditlev (1976, 1980); Campbell (1980); Veron and Wallace (1985); Phongsuwan (1986); THE GULF (NORTHERN): Basson *et al.* (1977); Burchard (1979); Sheppard (1985b); Sheppard and Shepard (1991); THE GULF (SOUTHERN): Sheppard (1987a); Sheppard and Salm (1988); Sheppard and Shepard (1991); TONGA: Hoffmeister (1932); TRES MARIAS IS.: Squires (1959); TRINIDAD: Kenny (1977); TUAMOTUS: Chevalier (1974, 1976, 1979, 1981); Pichon (1985); VENEZUELA: Antonius (1980); VIETNAM (NHA TRANG): Latypov (1982, pers. comm.); WAKE I.: Wells (1954); ZANZIBAR: Wells (1954).

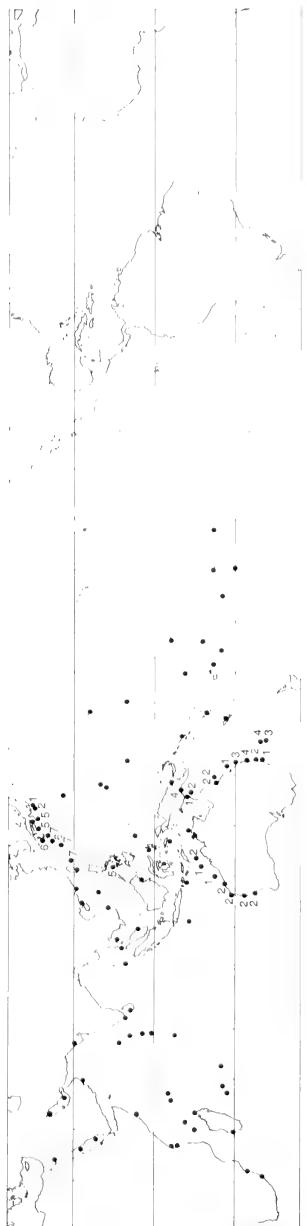


Figure 4. The distribution of *Acanthastrea*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 6 species.



Figure 5. The distribution of *Archelia*. The genus contains one species, *A. horrescens*.

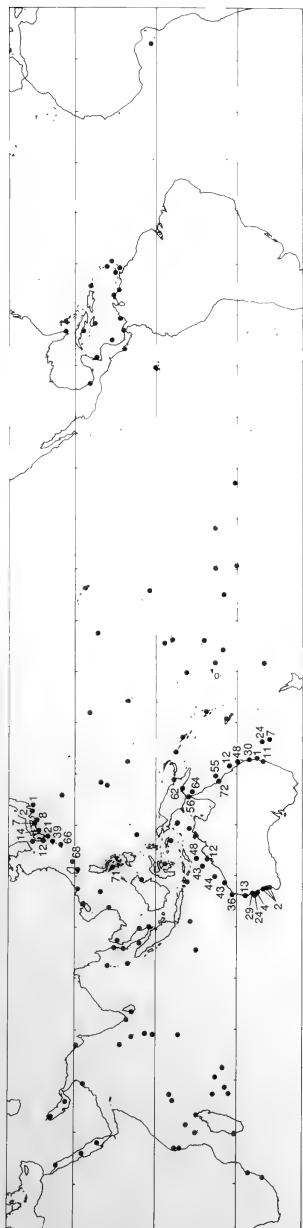


Figure 6. The distribution of *Acropora*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains at least 150 species.



Figure 7. The distribution of *Agaricia*. The genus contains approximately 5 species.

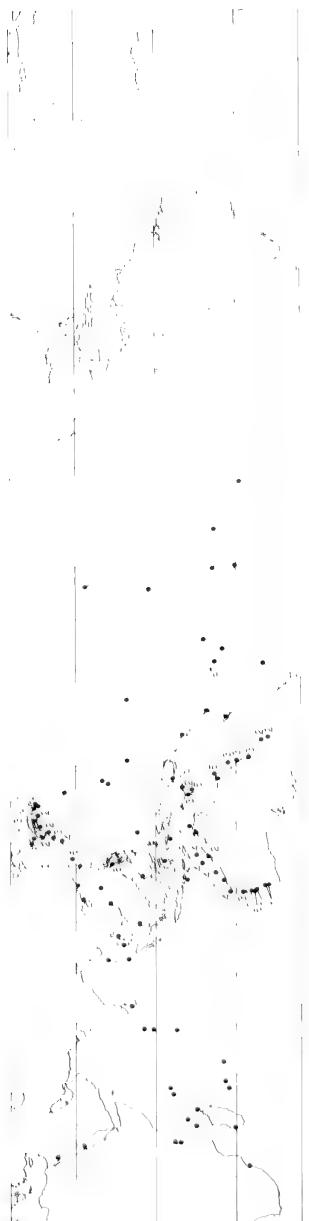


Figure 8. The distribution of *Altropora*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 15 species.



Figure 9. The distribution of *Anacropora*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 6 species.

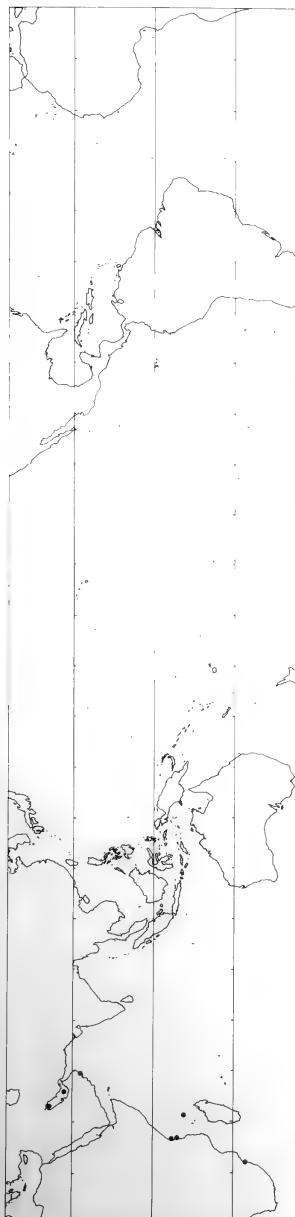


Figure 10. The distribution of *Anonastraea*. The genus contains one species, *A. irregularis*.

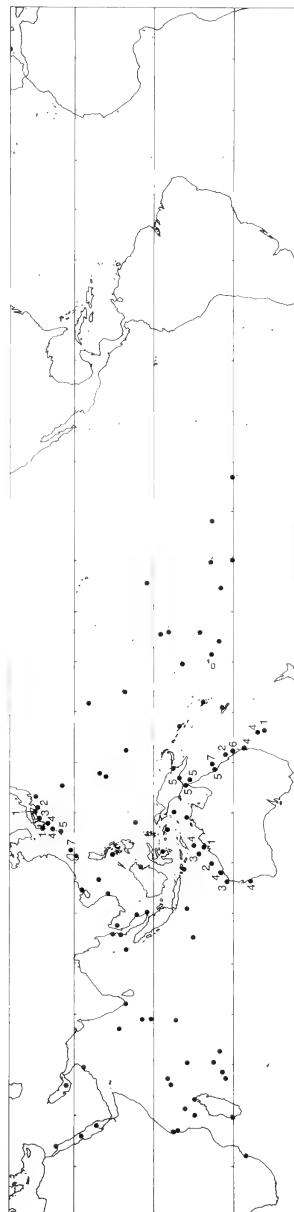


Figure 11. The distribution of *Astreopora*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 15 species.



Figure 12. The distribution of *Astrosmia*. The genus contains one species, *A. connata*.

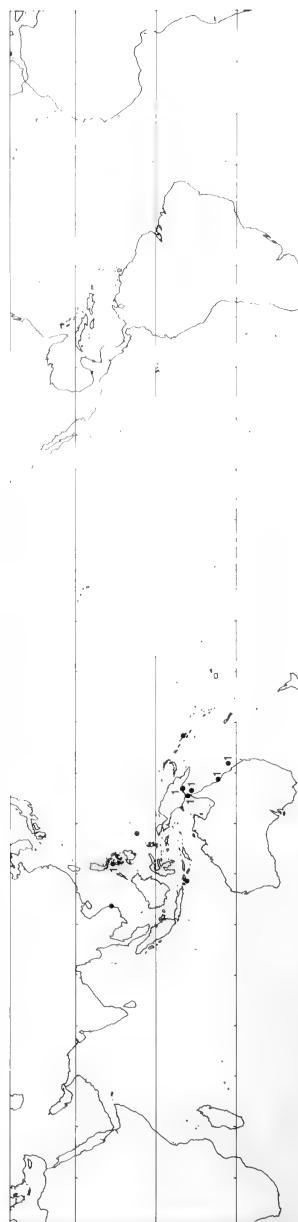


Figure 13. The distribution of *Australoagrya*. The genus contains one species, *A. zelli*.

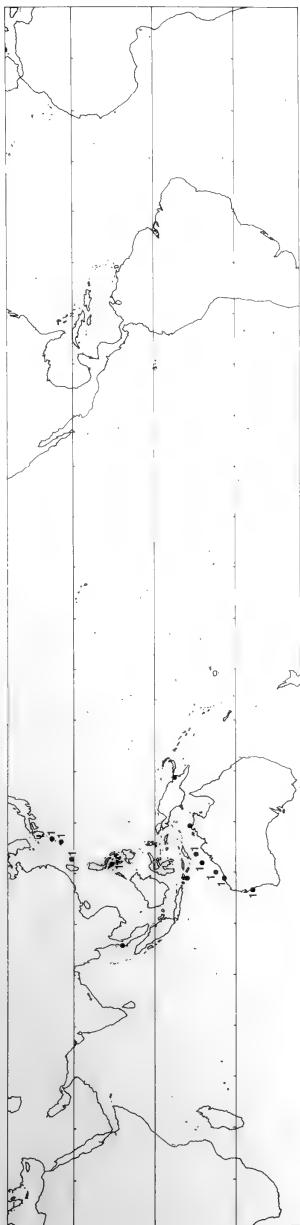


Figure 14. The distribution of *Australomussa*. The genus contains one species, *A. royleyensis*.



Figure 15. The distribution of *Barabattoia*. One species, *B. amicorum* is recorded from Australia, the Philippines and Japan. The genus contains approximately 3 species.

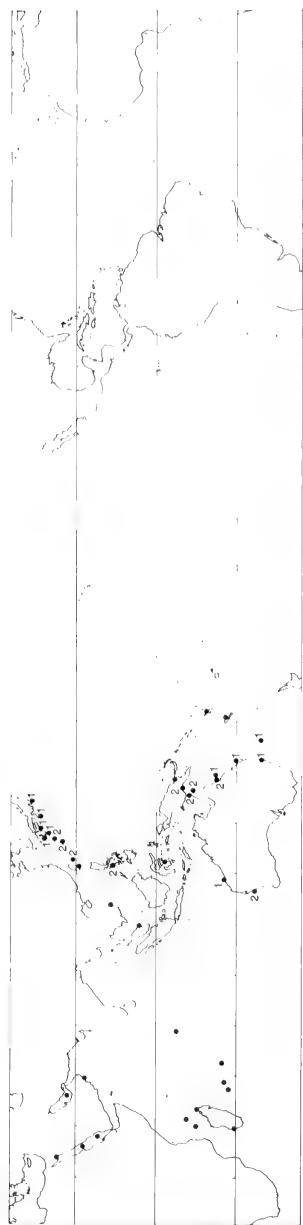


Figure 16. The distribution of *Blastomussa*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains 3 species.



Figure 17. The distribution of *Bonimastrea*. The genus contains one species, *B. boninensis*.



Figure 18. The distribution of *Cantharellus*. Not recorded by the author from Australia. Two species, similar to *Cyclocleria*, are described.



Figure 19. The distribution of *Catalaphyllia*. The genus probably contains one species, *C. jardinei*.



Figure 20. The distribution of *Caulastrea*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 4 species.

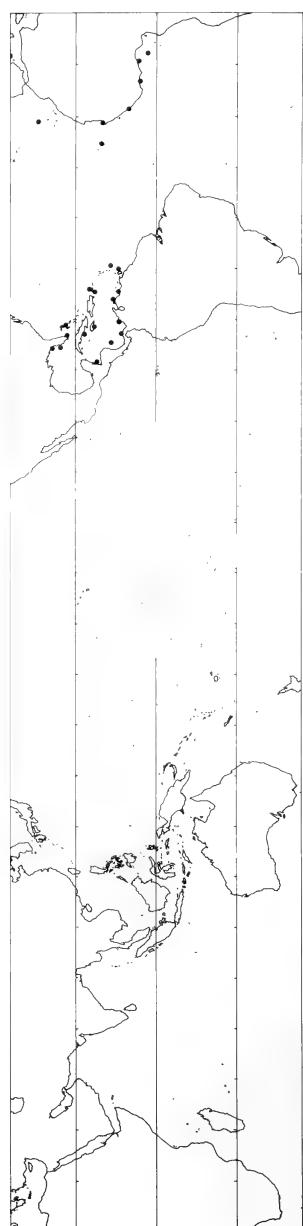


Figure 21. The distribution of *Cladocora*. The genus contains one species, *C. arbuscula*.

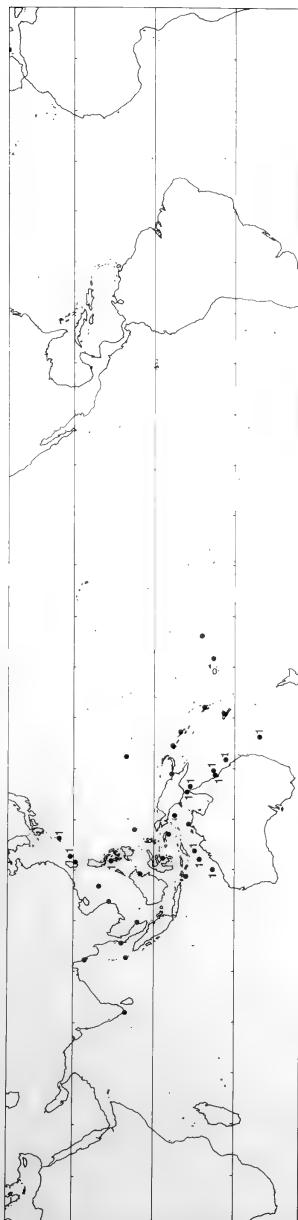


Figure 22. The distribution of *Coeloseris*. The genus contains one species, *C. mayeri*.

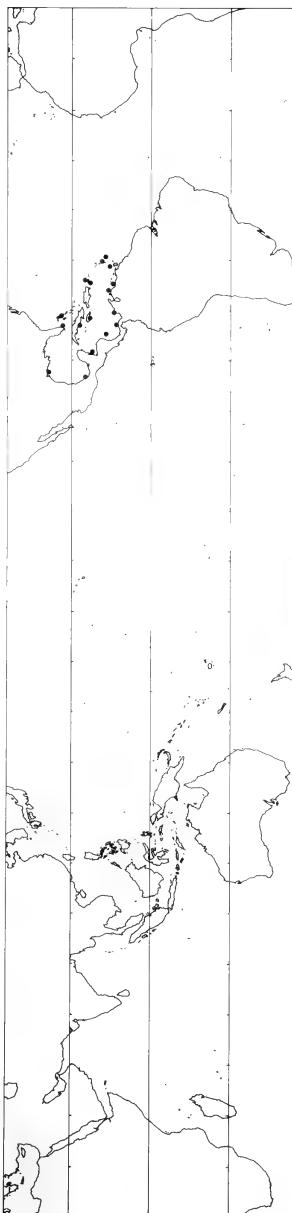


Figure 23. The distribution of *Colpophyllia*. The genus probably contains 2 species.

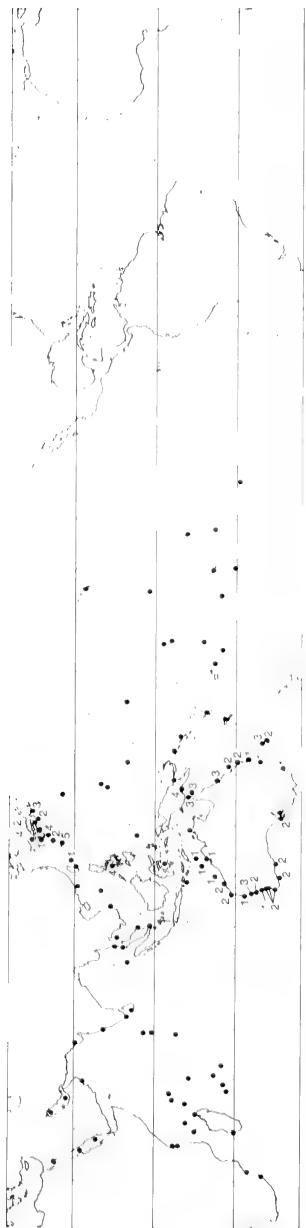


Figure 24. The distribution of *Coscinaraea*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 12 species.



Figure 25. The distribution of *Ctenactis*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains 3 species.

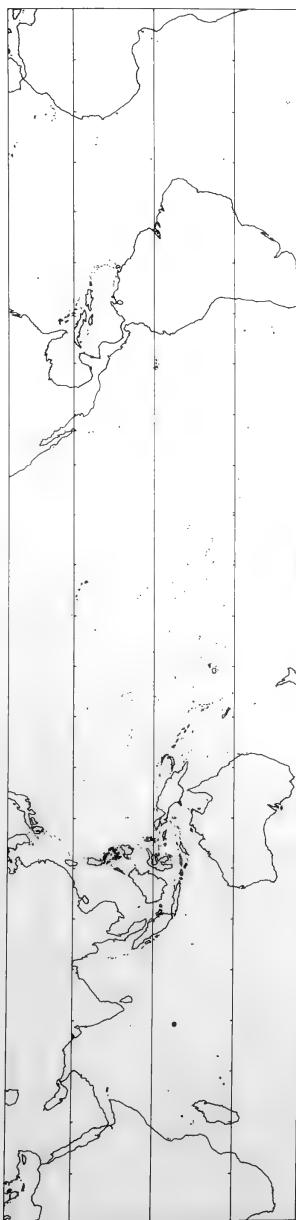


Figure 26. The distribution of *Ctenella*. The genus contains one species, *C. chagius*.

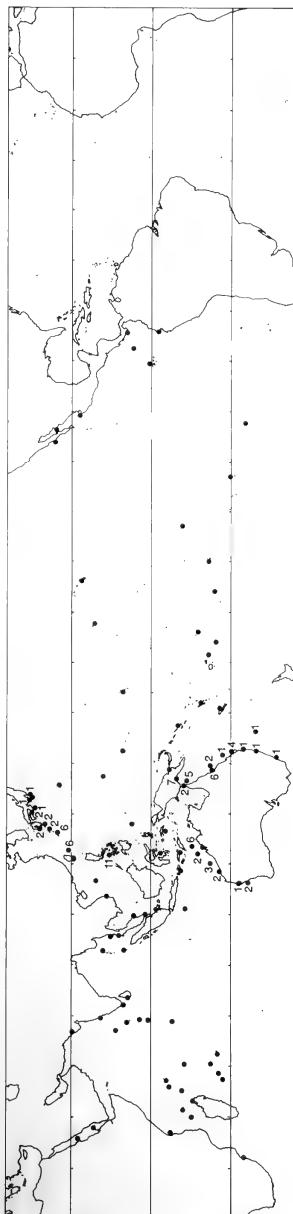


Figure 27. The distribution of *Cycloseris*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 16 species.

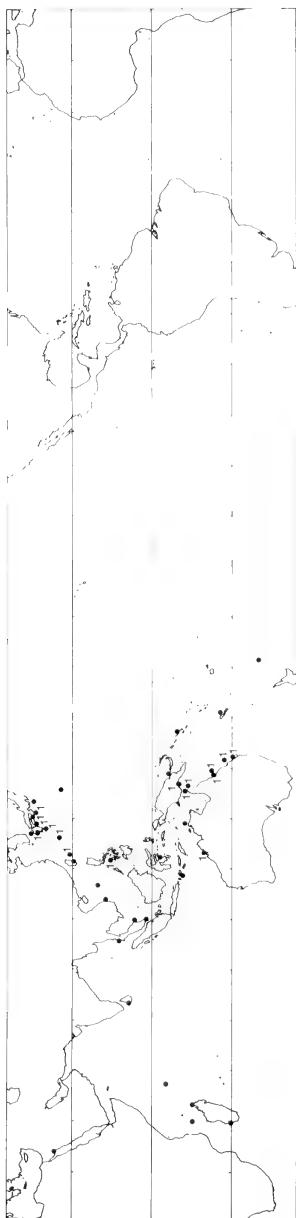


Figure 28. The distribution of *Cyphastrea*. The genus probably contains one species, *C. lacrymatis*.

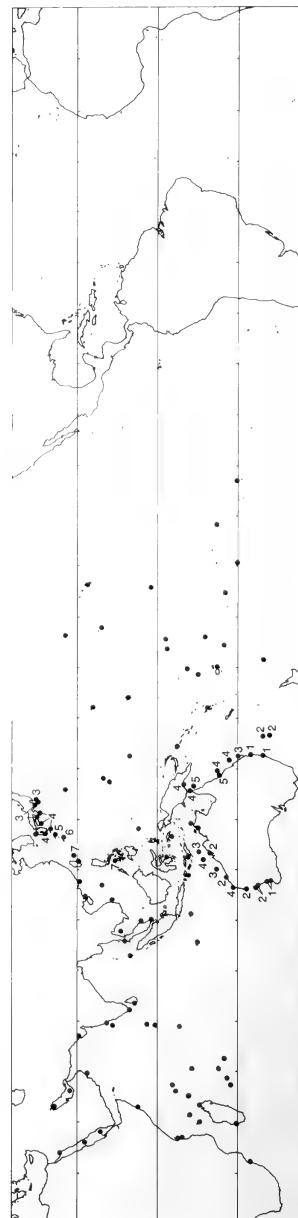


Figure 29. The distribution of *Cyphastrea*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 9 species.

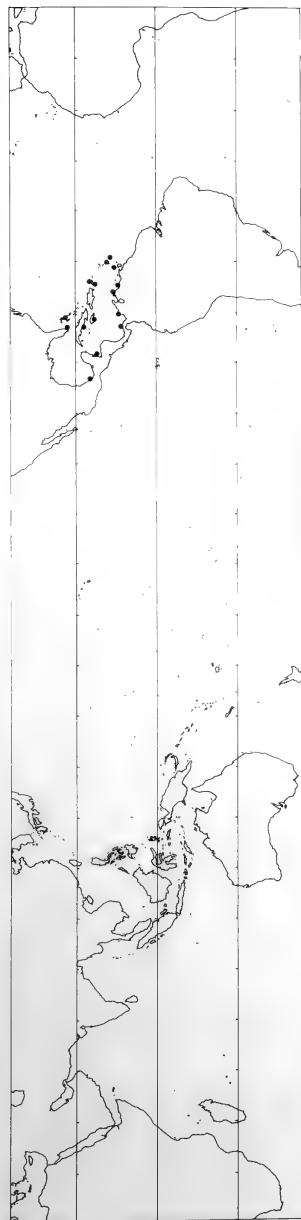


Figure 30. The distribution of *Dendrogyra*. The genus contains one species, *D. cylindricus*.



Figure 31. The distribution of *Diadema*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 3 species.

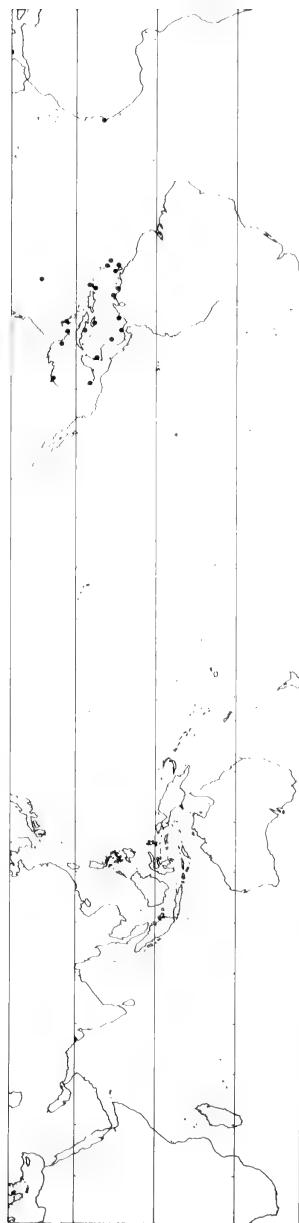


Figure 32. The distribution of *Dichocoenia*. The genus contains approximately 2 species.

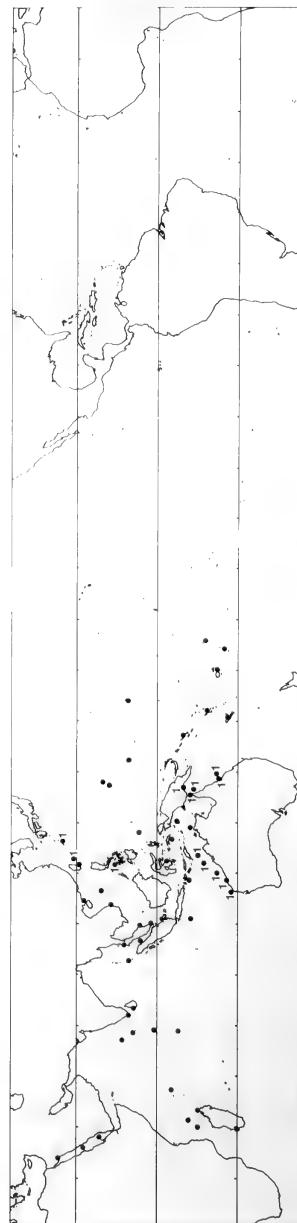


Figure 33. The distribution of *Diploastrea*. The genus contains one species, *D. heliopora*.

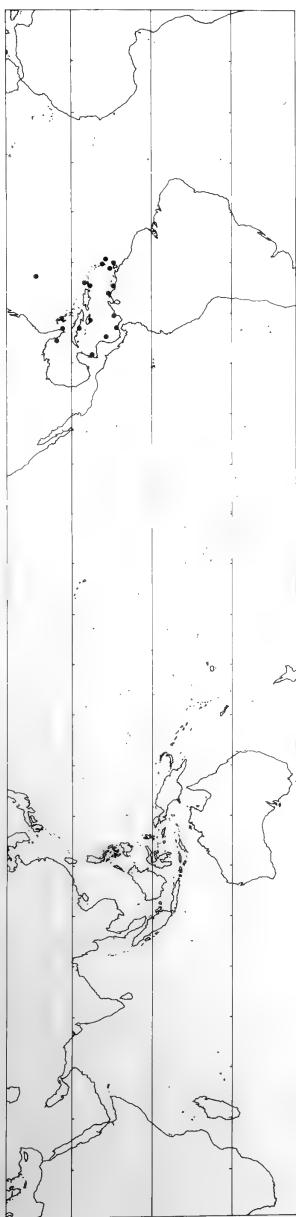


Figure 34. The distribution of *Diploria*. The genus contains 3 species.



Figure 35. The distribution of *Duncanopsammia*. The genus contains one species, *D. axifuga*.

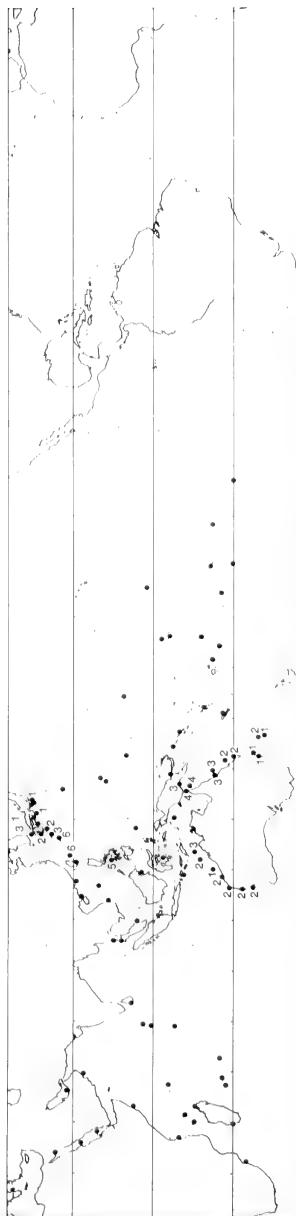


Figure 36. The distribution of *Echinophyllia*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 8 species.

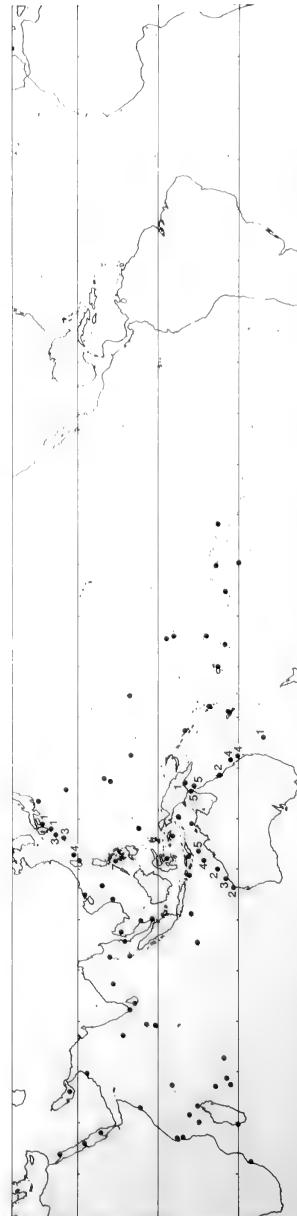


Figure 37. The distribution of *Echinopora*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 7 species.

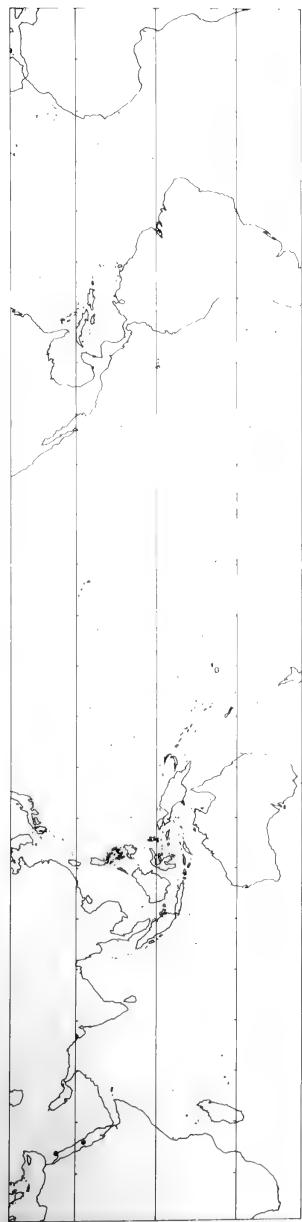


Figure 38. The distribution of *Erythrastraenia*. The genus probably contains one species, *E. flabellata*.

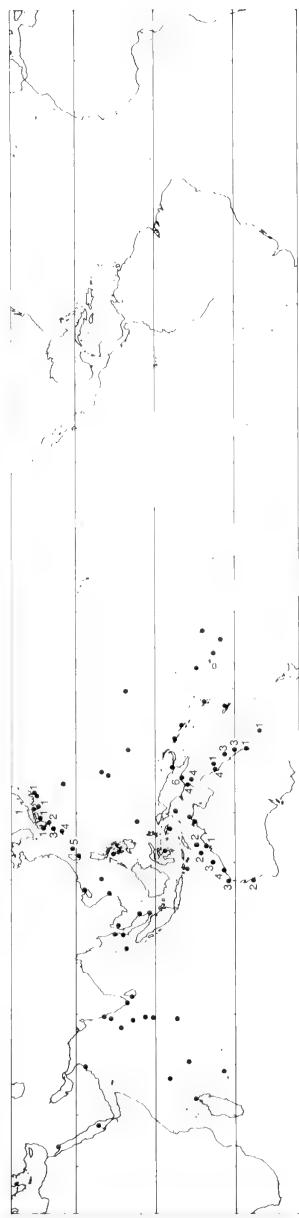
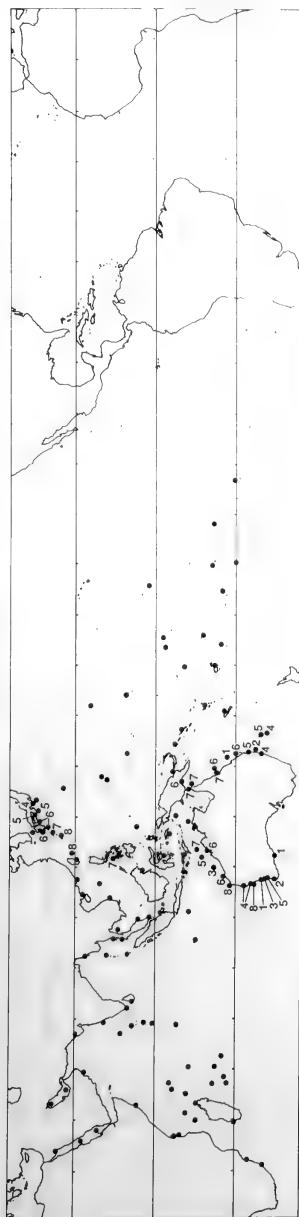
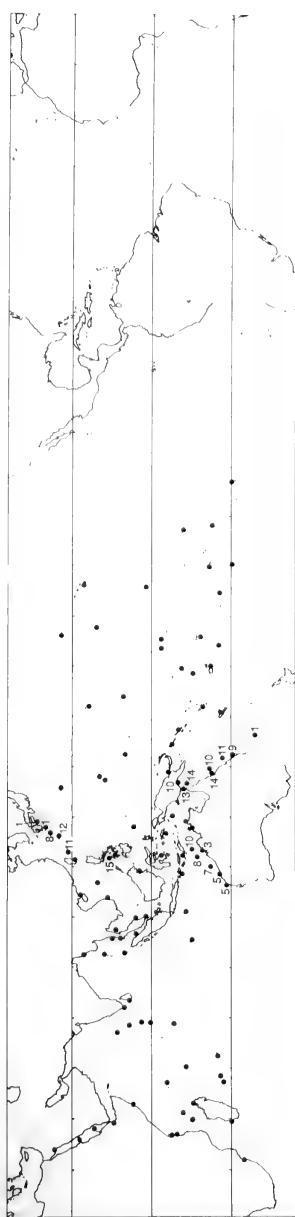


Figure 39. The distribution of *Euphyllia*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains 9 species.



**Figure 42.** The distribution of *Eavitidae*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 15 species.



**Figure 43.** The distribution of *Fungia*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 33 species.

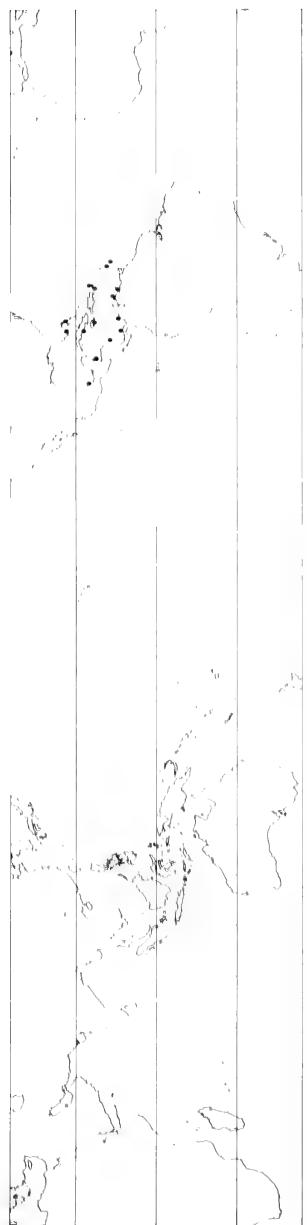


Figure 40. The distribution of *Eusmilia*. The genus contains one species, *E. fastigiata*.

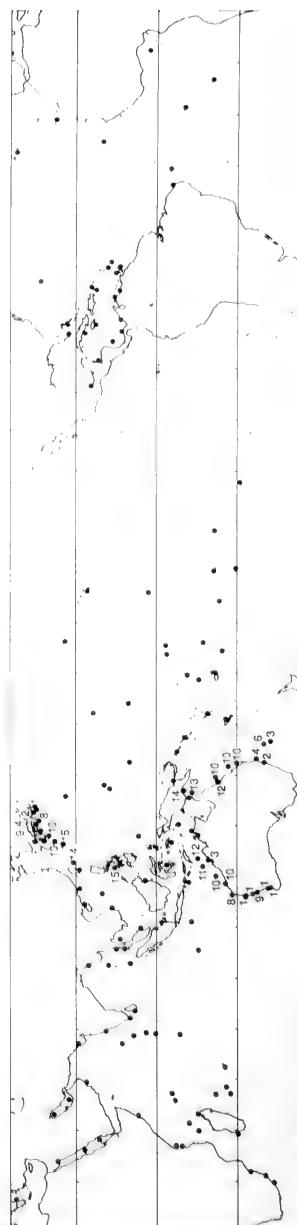


Figure 41. The distribution of *Favia*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains at least 30 species.

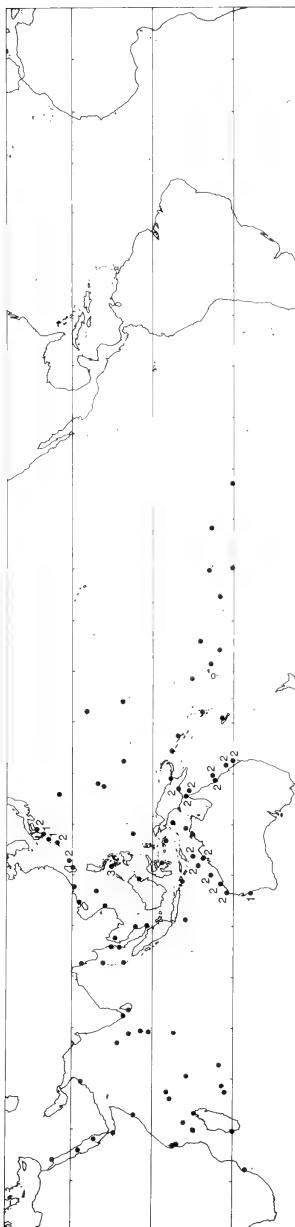


Figure 44. The distribution of *Galaxea*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 5 species.

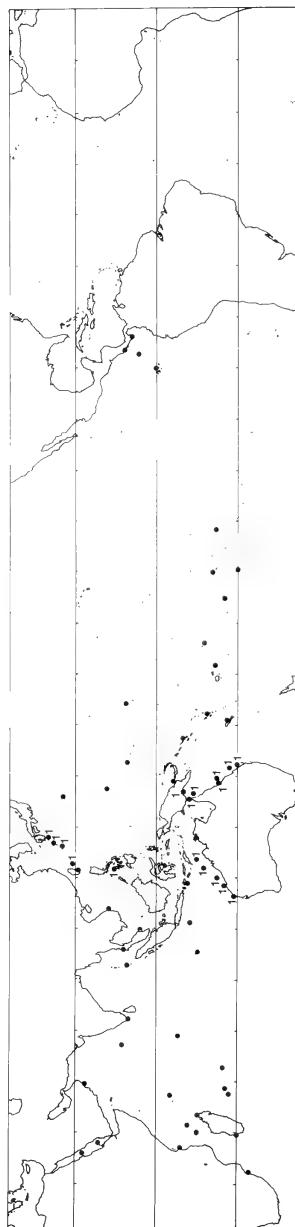
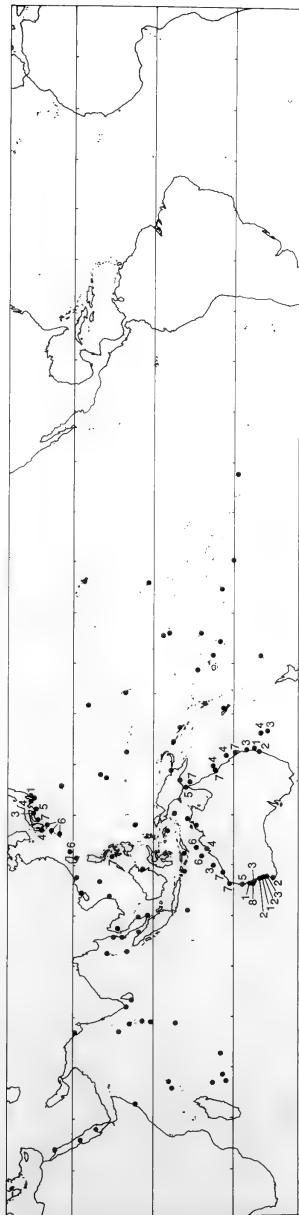
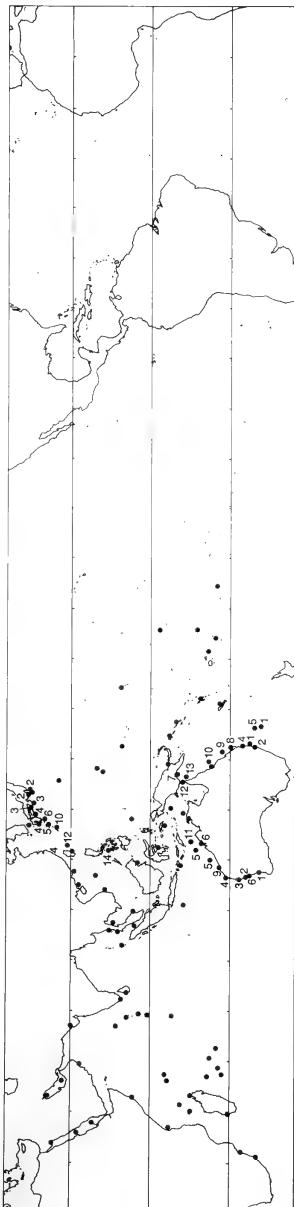


Figure 45. The distribution of *Gardineroseris*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 2 species.



**Figure 46.** The distribution of *Goniastrea*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 12 species.



**Figure 47.** The distribution of *Goniopora*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 30 species.

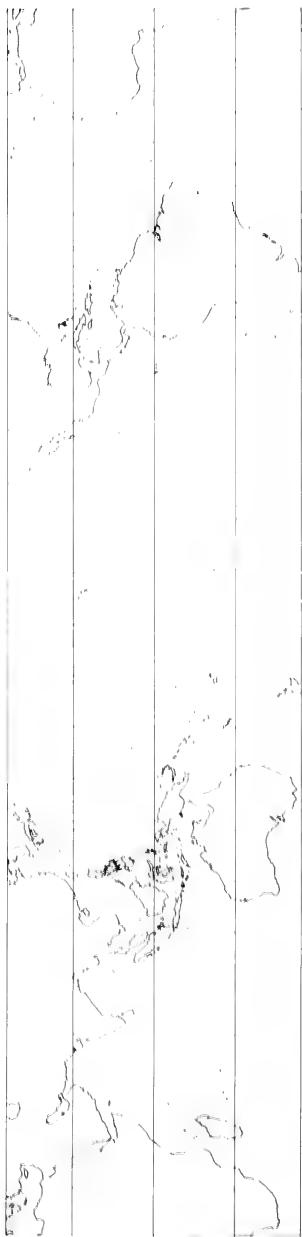


Figure 48. The distribution of *Gareaugyrn*. The genus contains one species, *G. membranalis*, known only from the Bahamas.



Figure 49. The distribution of *Gyrosmita*. The genus contains one species, *G. interrupta*.

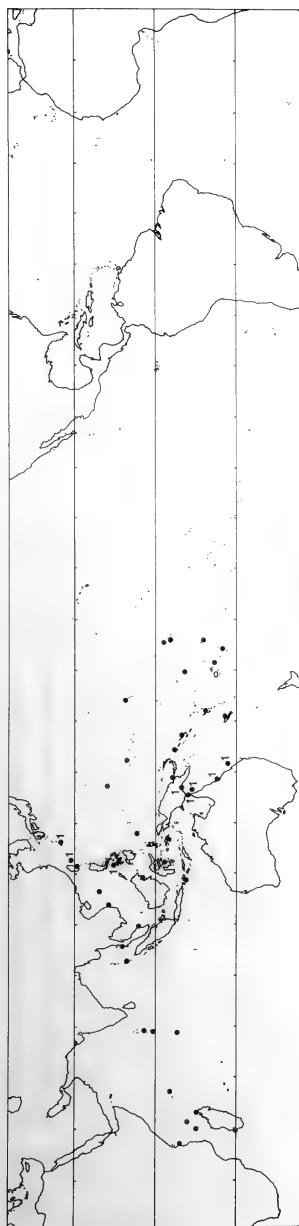


Figure 50. The distribution of *Halomitra*. The genus contains one species, *H. pileus*.

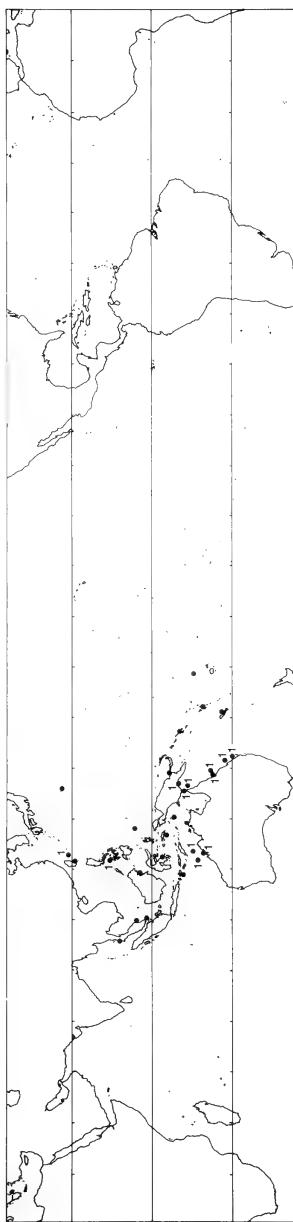


Figure 51. The distribution of *Heliofungia*. The genus contains one species, *H. actiniformis*.

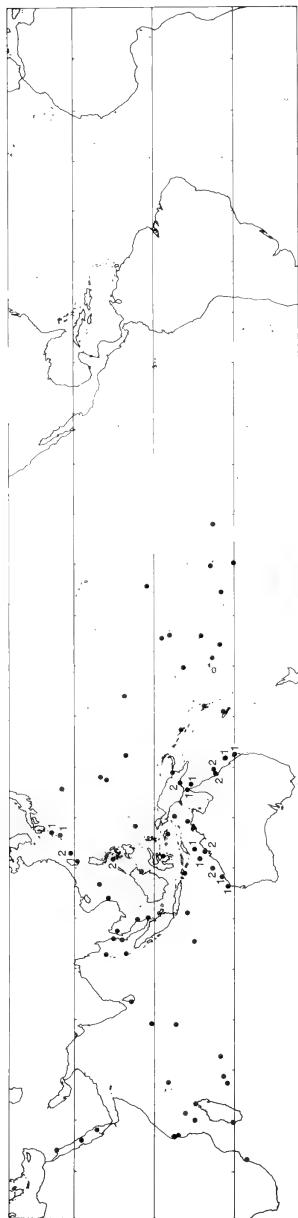


Figure 52. The distribution of *Herpolitha*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains 2 species.



Figure 53. The distribution of hermatypic *Heteropsammia*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 2 hermatypic species.



Figure 54. The distribution of *Horastrea*. The genus contains one species, *H. indica*.

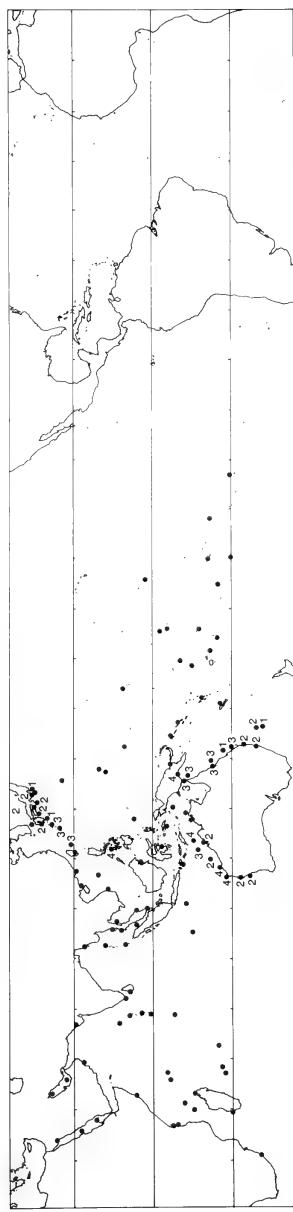


Figure 55. The distribution of *Hydnophora*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 7 species.



Figure 58. The distribution of *Isophyllia*. The genus probably contains two species.

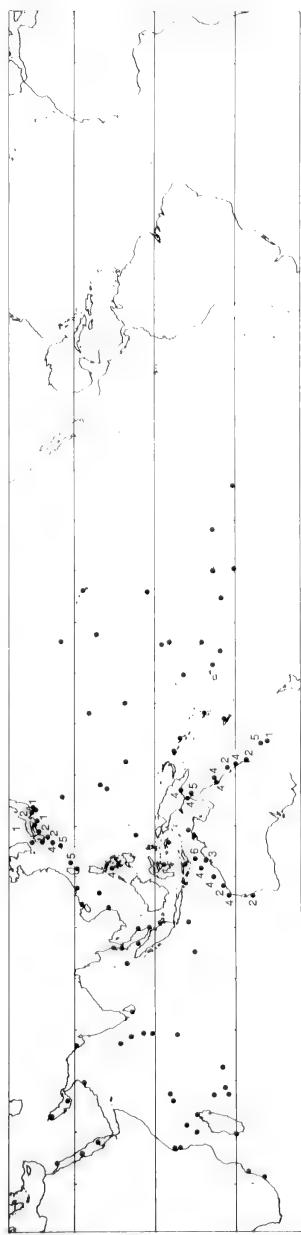


Figure 59. The distribution of *Leptastrea*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 8 species.



Figure 56. The distribution of *Indophyllia*. The genus contains one species, *I. massaeensis*.

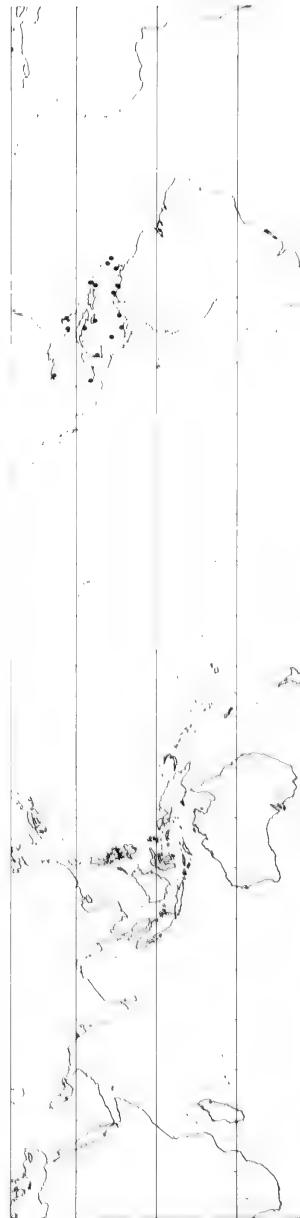


Figure 57. The distribution of *Isophyllastrea*. The genus contains one species, *I. rigida*.

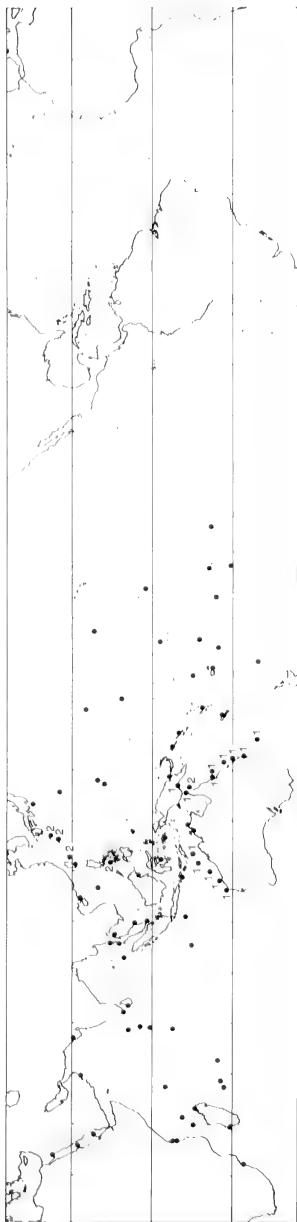


Figure 60. The distribution of *Leptoria*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. All of this range is that of *L. phrygia*. The genus contains 2 species.

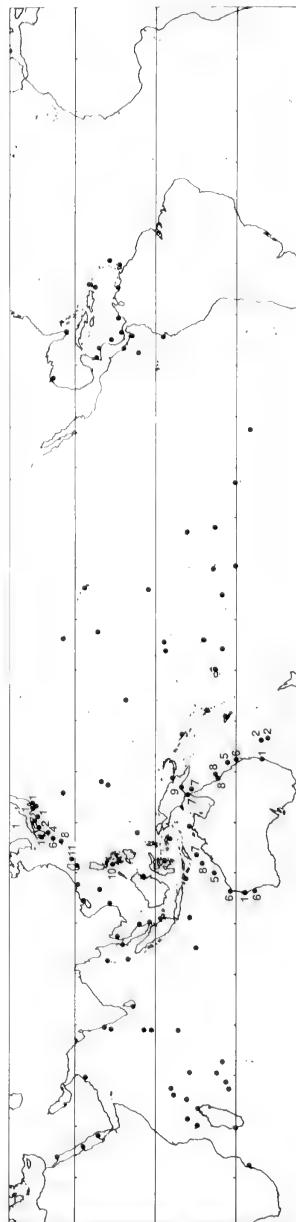


Figure 61. The distribution of *Leptoseris*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 14 species, including the Atlantic species *L. acicillata*, frequently placed in the genus *Helioseris*. *Catenasteria* is also a synonym of *Leptoseris*.

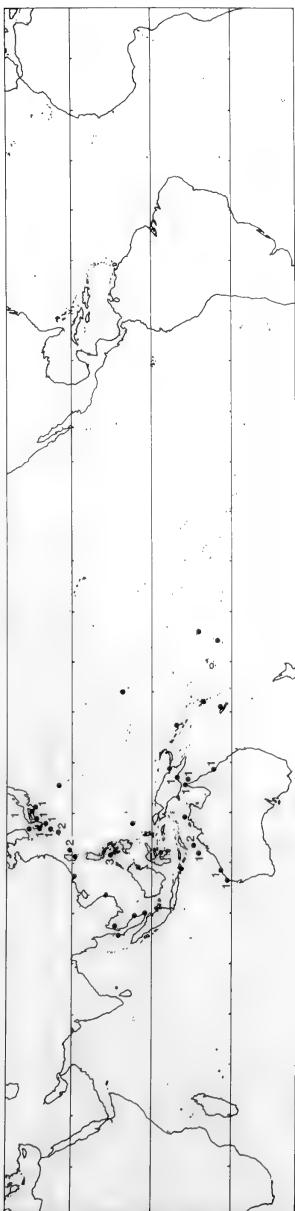


Figure 62. The distribution of *Lithophyllum*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 4 species.

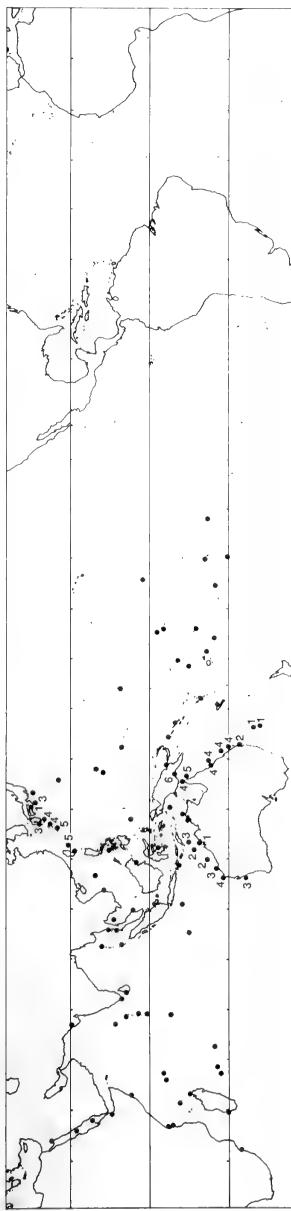


Figure 63. The distribution of *Lobophyllia*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 9 species.

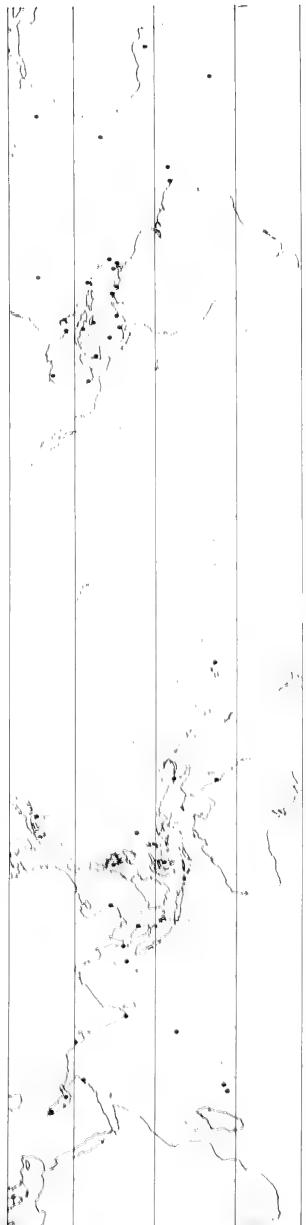


Figure 64. The distribution of hermatypic *Manicina*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 4 hermatypic species.



Figure 65. The distribution of *Manicina*. The genus contains one species, *M. areolata*.

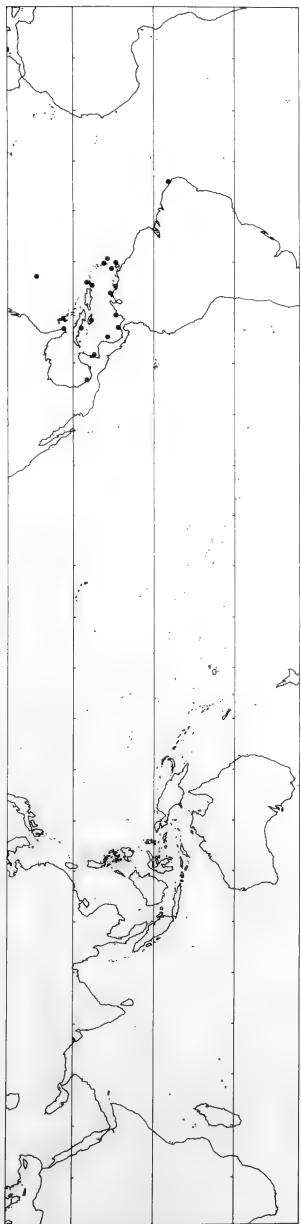


Figure 66. The distribution of *Meandrina*. The genus probably contains two species.

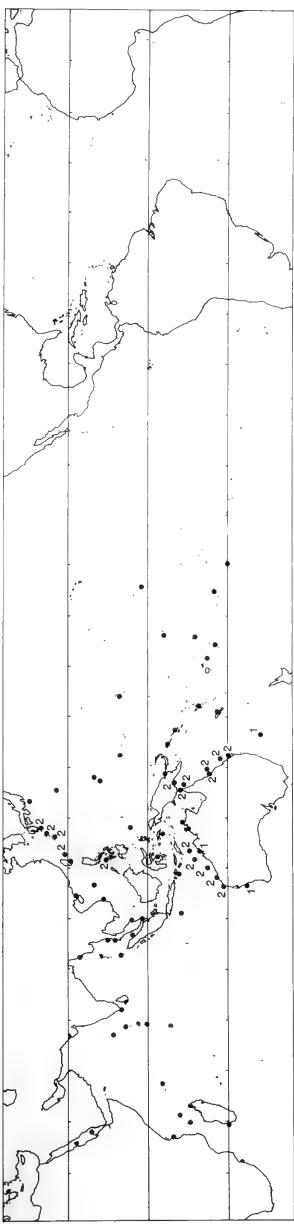


Figure 67. The distribution of *Merulina*. The genus contains 3 species.

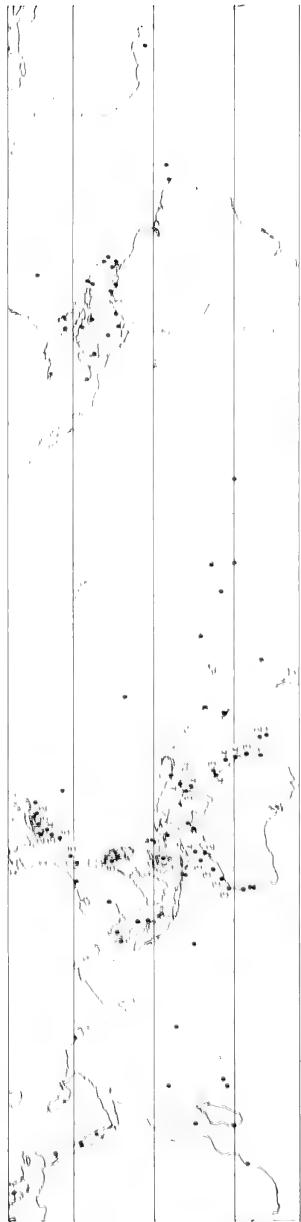
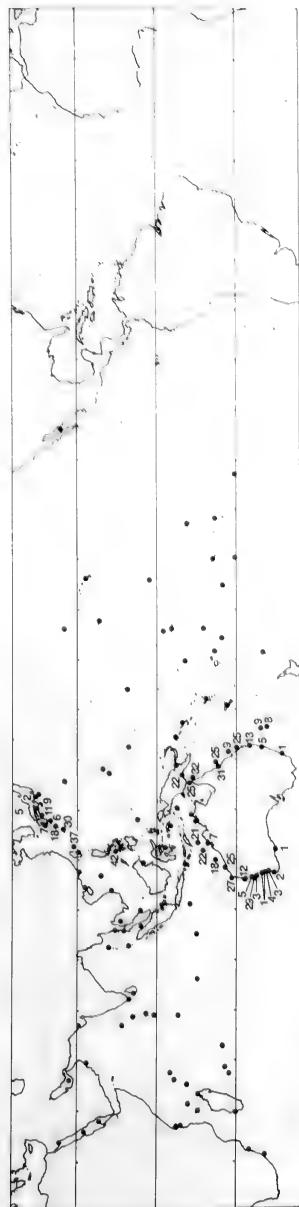


Figure 68. The distribution of *Montistrea*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 13 species.



Figure 69. The distribution of *Montigra*. The genus contains one species, *M. kentii*, known only from the holotype from W Australia.



**Figure 70.** The distribution of *Montipora*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains at least 80 species.

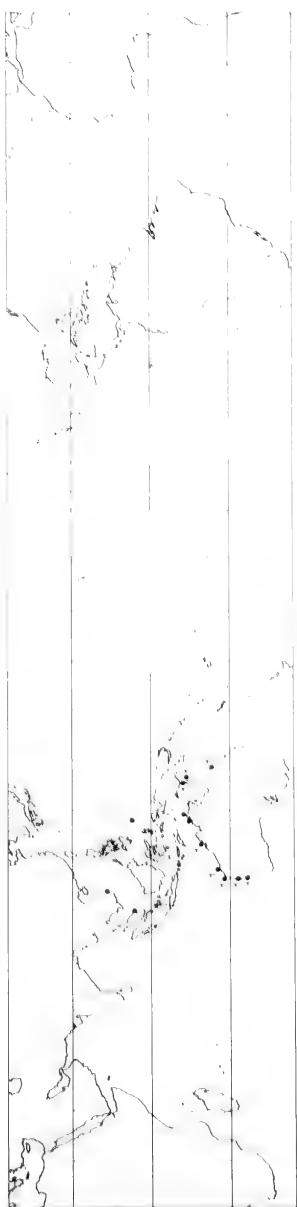


Figure 71. The distribution of *Moseleya*. The genus contains one species, *M. latistellata*.



Figure 72. The distribution of *Mussa*. The genus contains one species, *M. angulosa*.

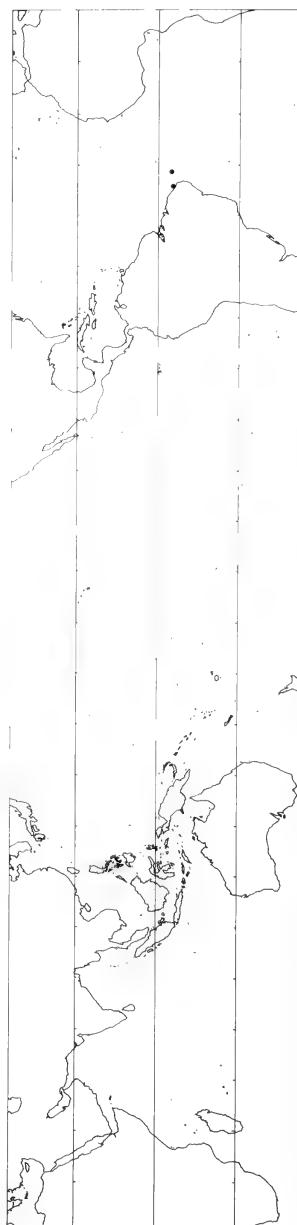


Figure 73. The distribution of *Musismilia*. The genus contains approximately 3 species.

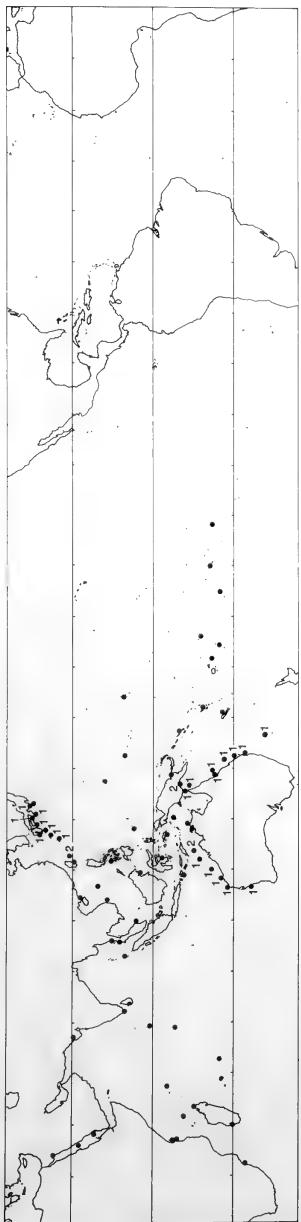


Figure 74. The distribution of *Mycetodium*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 2 species.



Figure 75. The distribution of *Mycetophyllia*. The genus contains approximately 5 species.



Figure 76. The distribution of hermatypic *Oculina*. The genus contains approximately 5 hermatypic species.



Figure 77. The distribution of *Oulastrea*. The genus probably contains one species, *O. crispata*.

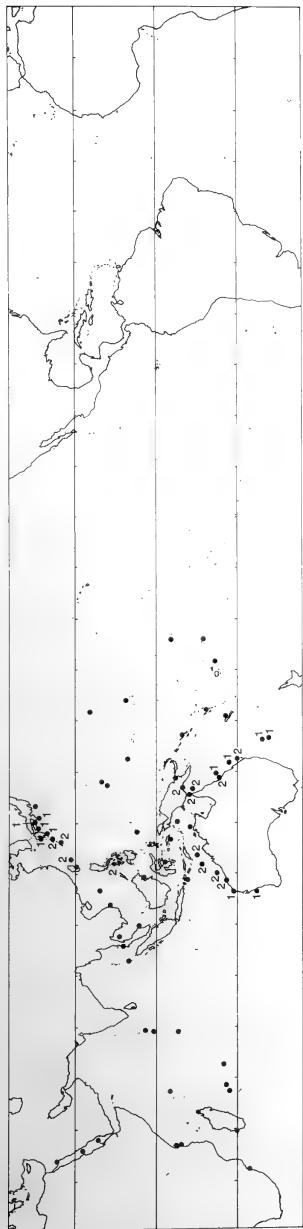


Figure 78. The distribution of *Oulophyllia*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 3 species.

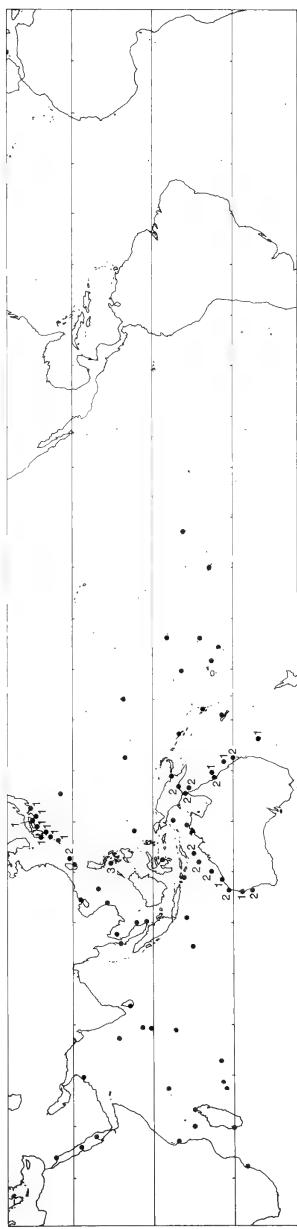


Figure 79. The distribution of *Oxypona*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 3 species.

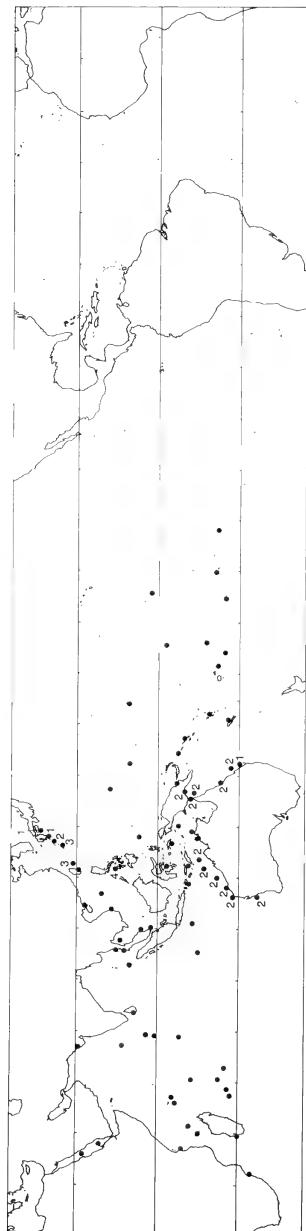


Figure 80. The distribution of *Pachyseris*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 4 species.

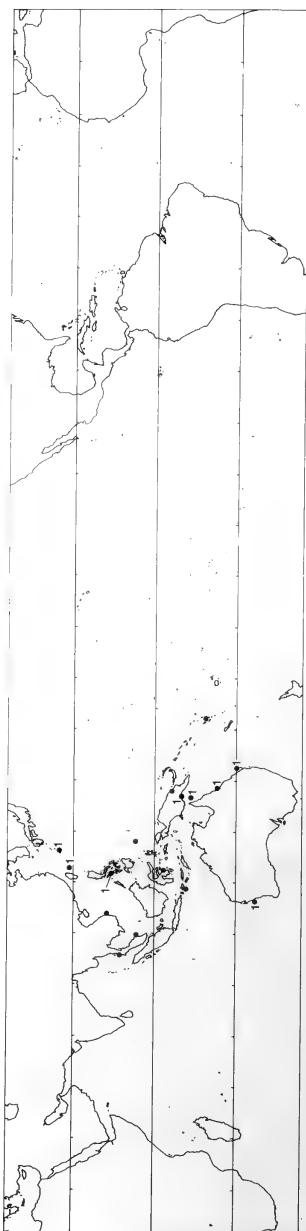


Figure 81. The distribution of *Palauastrea*. The genus probably contains one species, *P. ramosa*.



Figure 82. The distribution of *Paraclavaria*. The genus contains one species, *P. triangularis*.



Figure 83. The distribution of *Parasimplastrea*. The genus contains one species, *P. simplicitexta*.

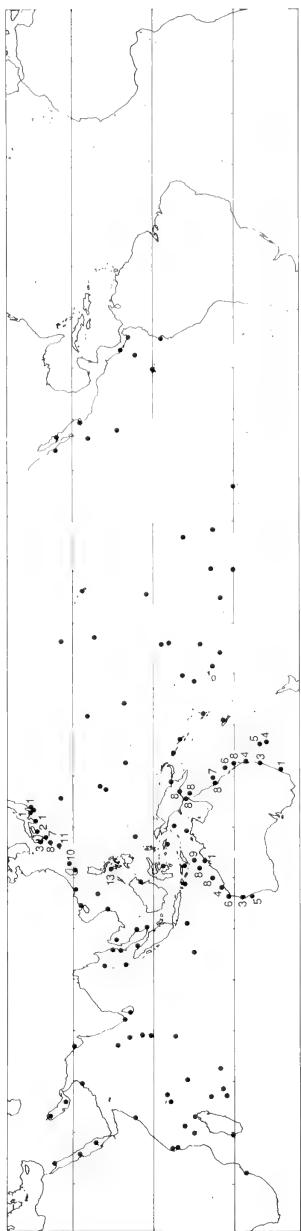


Figure 84. The distribution of *Pavona*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 22 species.

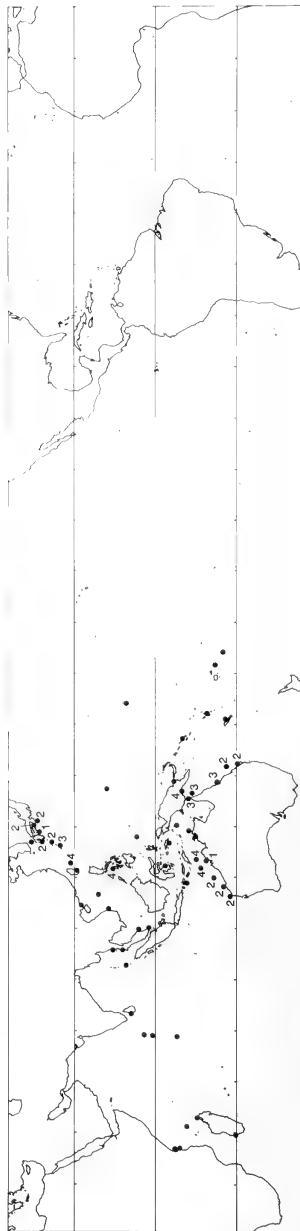


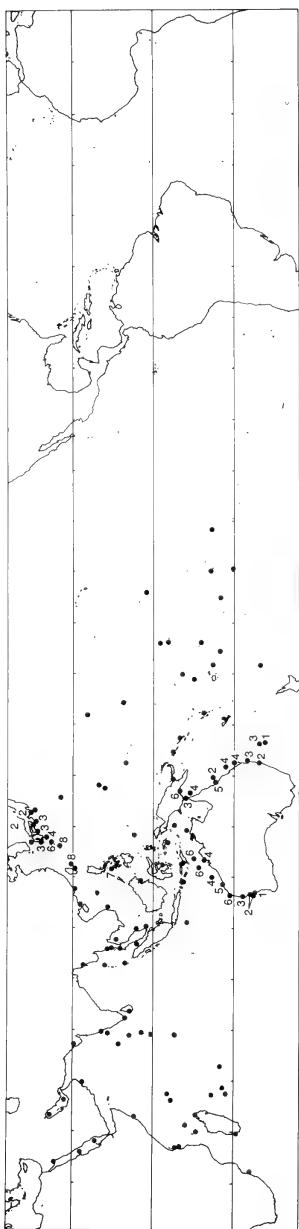
Figure 85. The distribution of *Pectinia*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 7 species.



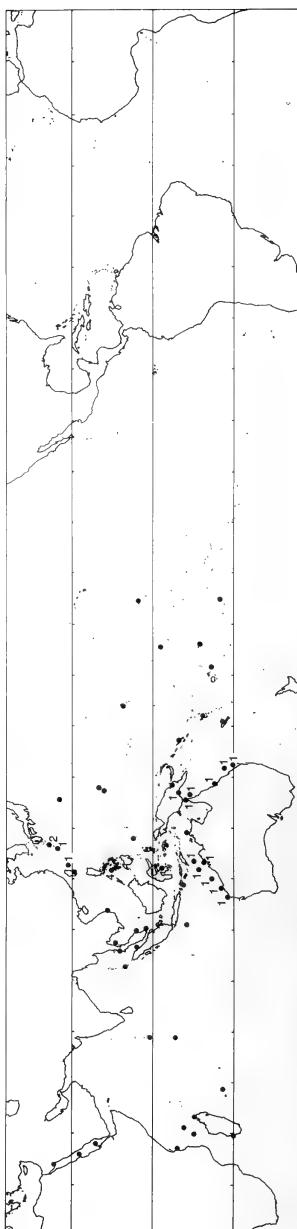
Figure 86. The distribution of *Physogryra*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains 3 species.



Figure 87. The distribution of *Physophyllia*. The genus contains one species, *P. ayleni*.



**Figure 88.** The distribution of *Platygrya*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 12 species.



**Figure 89.** The distribution of *Pterogyra*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains 3 species. Includes the genus *Nemenzozophylla*.

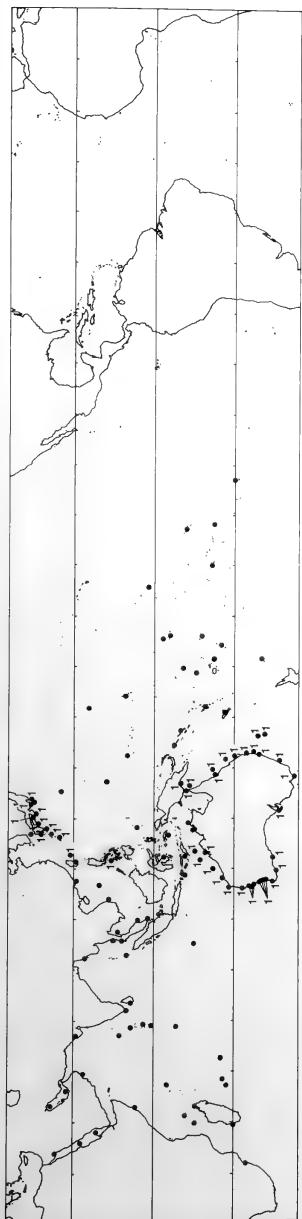
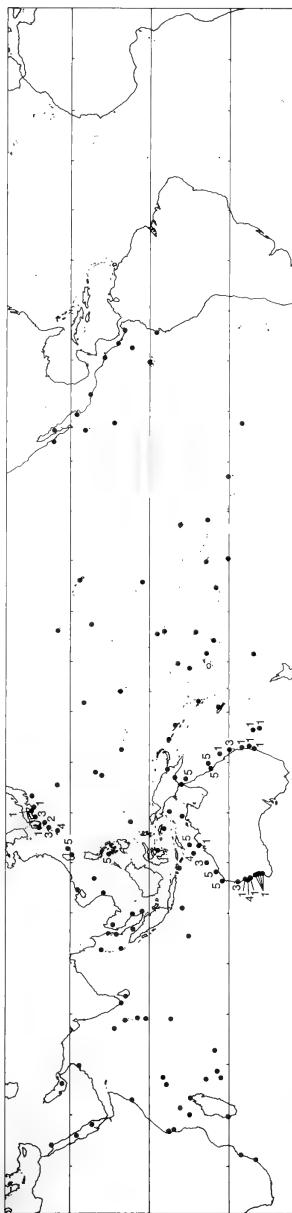


Figure 90. The distribution of *Plesiastrea*. All of this range is that of *P. versipora*. The genus contains approximately 2 species.



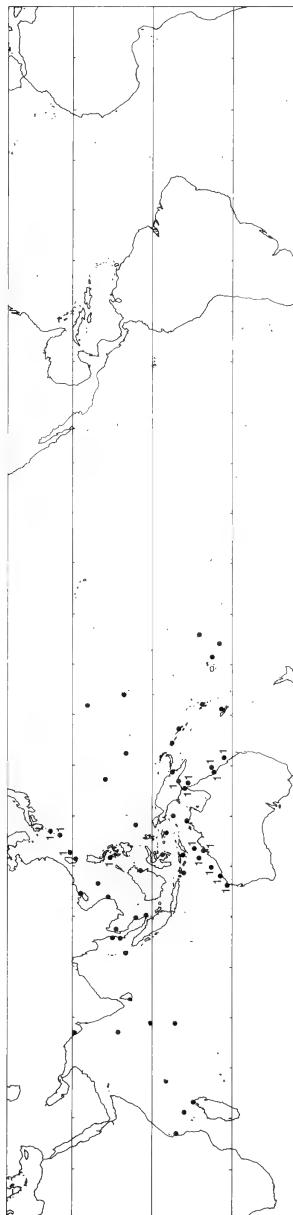


Figure 92. The distribution of *Podabacia*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. All of this range is that of *P. crustacea*. The genus contains 2 species.

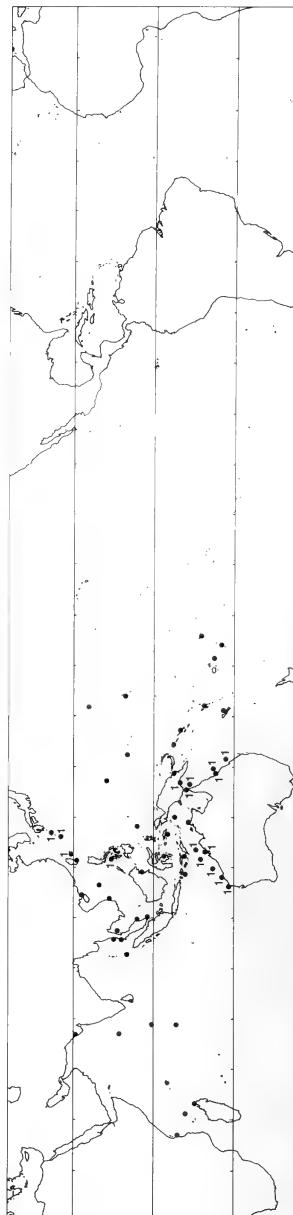


Figure 93. The distribution of *Polphyllia*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. All of this range is that of *P. talpina*. The genus contains 3 species.



Figure 94. The distribution of *Porites*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains at least 80 species.

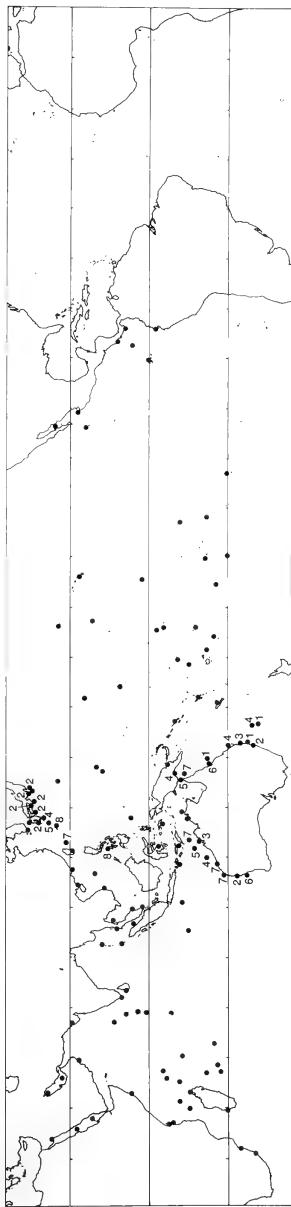


Figure 95. The distribution of *Psammocora*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 15 species.

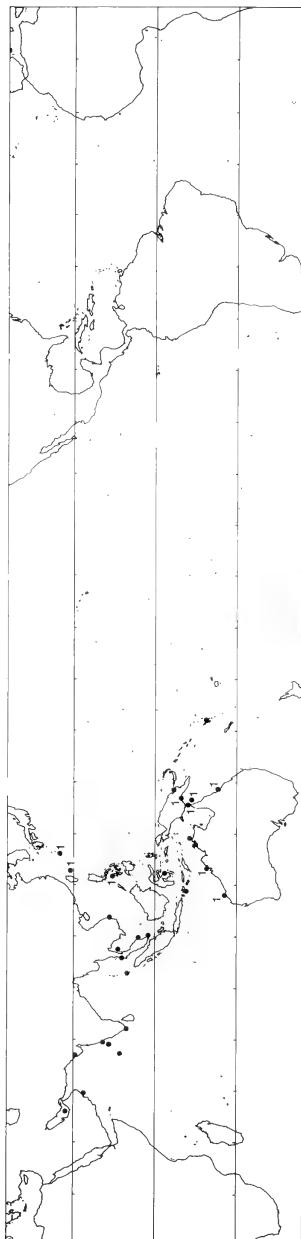


Figure 96. The distribution of *Pseudosideratae*. The genus contains one species, *P. tayani*.



Figure 97. The distribution of *Sandalolitha*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains 2 species.

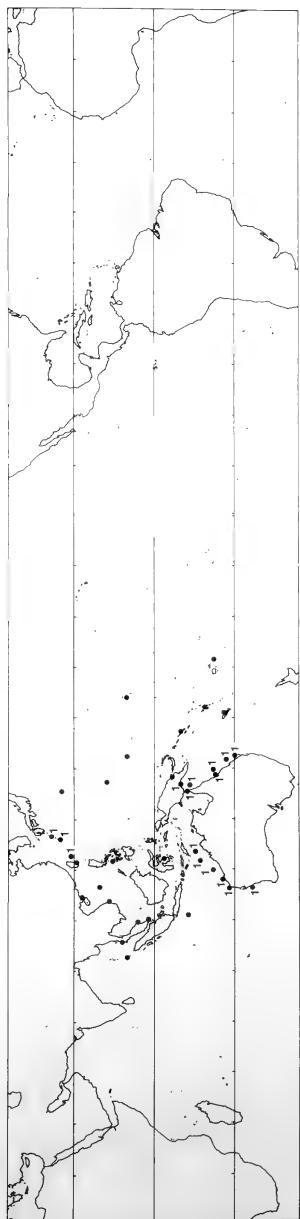


Figure 98. The distribution of *Scaphyphilia*. The genus contains one species, *S. cylindrica*.



Figure 99. The distribution of *Schizoculina*. The genus contains one species, *S. fissipara*.

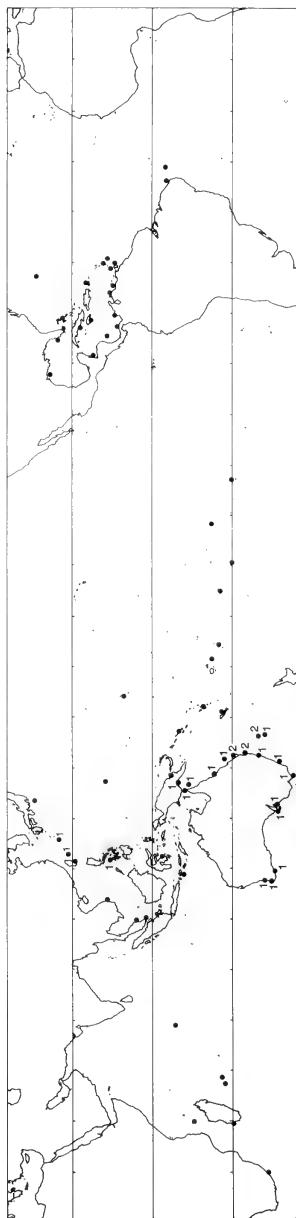


Figure 100. The distribution of *Scolymia*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 4 species.

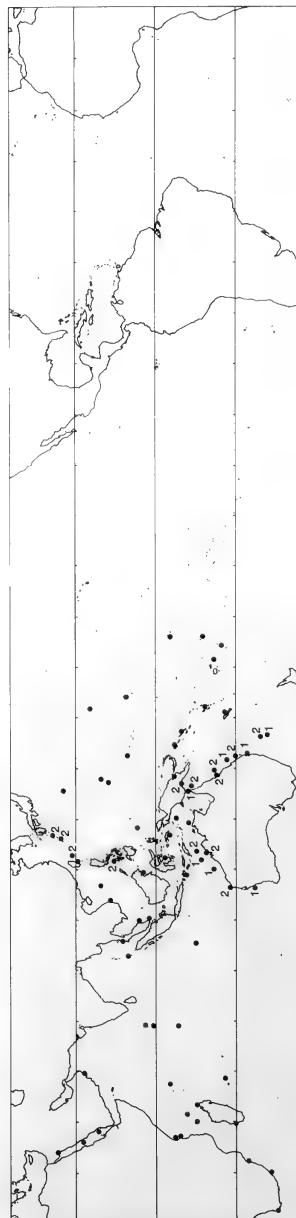


Figure 101. The distribution of *Seriatopora*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. Most of this range is that of *S. hystrix*. The genus contains approximately 5 species.

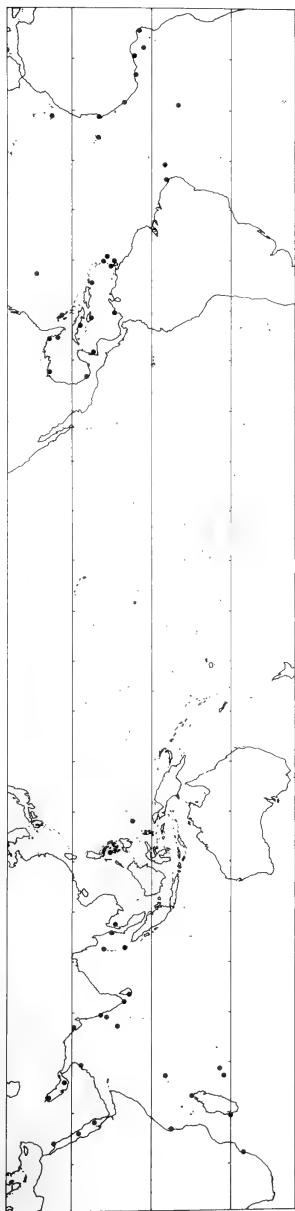


Figure 102. The distribution of *Siderastrea*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 5 species.



Figure 103. The distribution of *Simplastrea*. The genus contains one species, *S. vesicularis*.

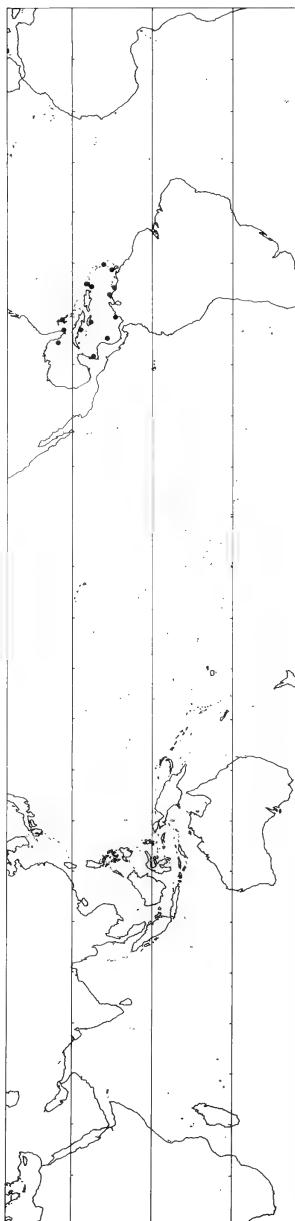


Figure 104. The distribution of *Solenastrea*. The genus probably contains two species.

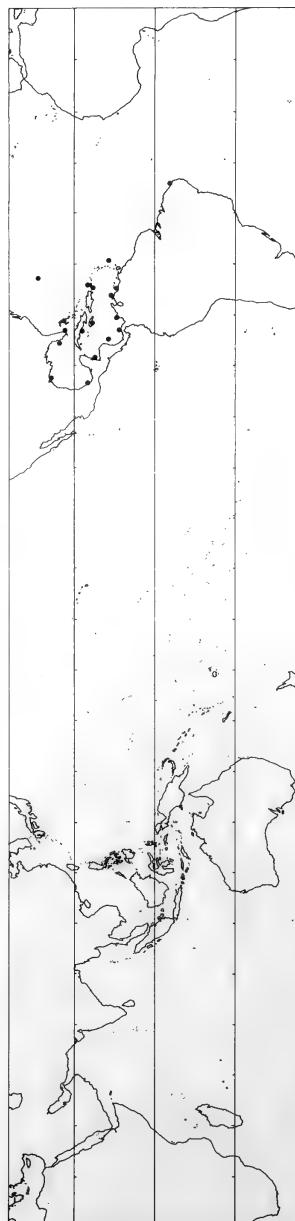


Figure 105. The distribution of *Stephanocenia*. The genus contains one species, *S. michelinii*.



Figure 106. The distribution of *Stylaraea*. The genus contains one species, *Stylaraea punctata*.

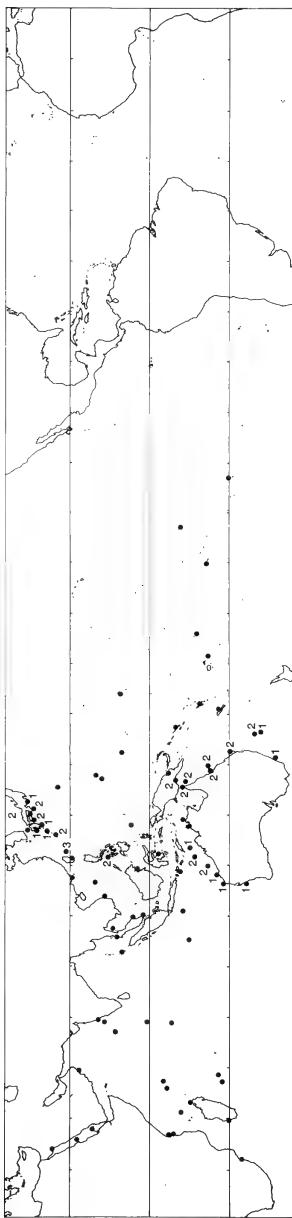


Figure 107. The distribution of *Styloceniella*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 3 species.

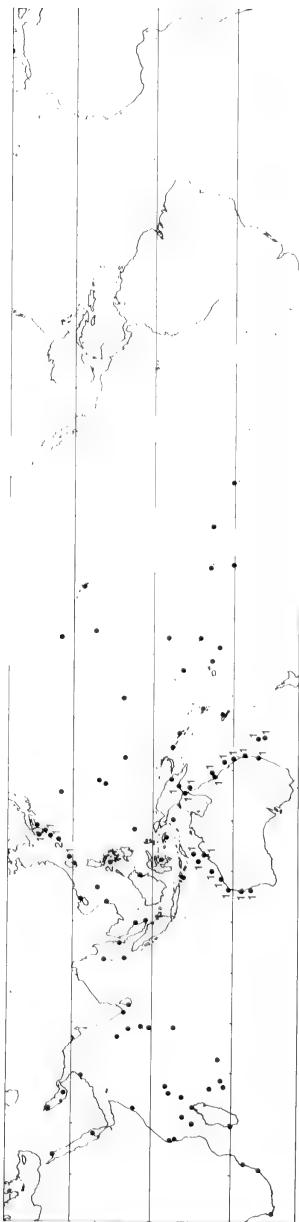


Figure 108. The distribution of *Stylophora*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. Most of this range is that of *S. pistillata*. The genus contains approximately 5 species.



Figure 109. The distribution of *Sympphyllia*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 6 species.

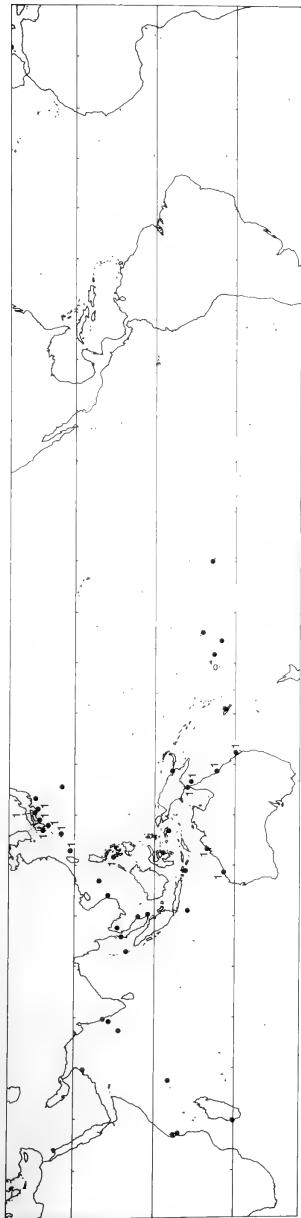


Figure 110. The distribution of *Trachyphyllia*. The genus probably contains one species, *T. geoffroyi* of which *Wellsophyllia* is a synonym.

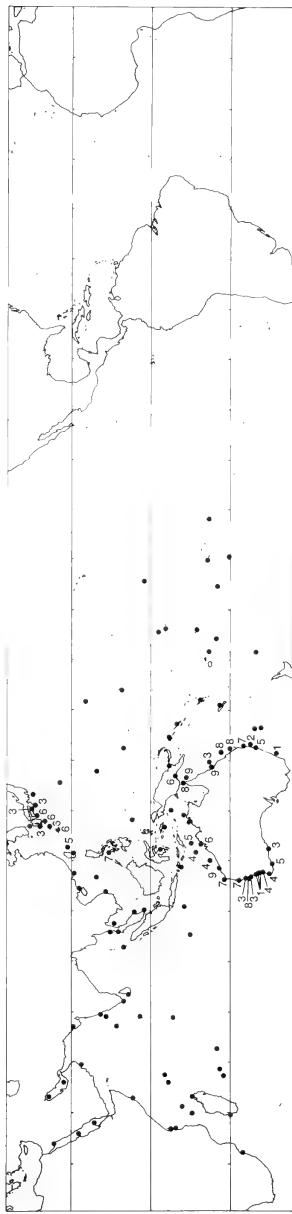


Figure 111. The distribution of *Turbinaria*. Numbers of species recorded from Australia, the Philippines and Japan are indicated. The genus contains approximately 15 species.

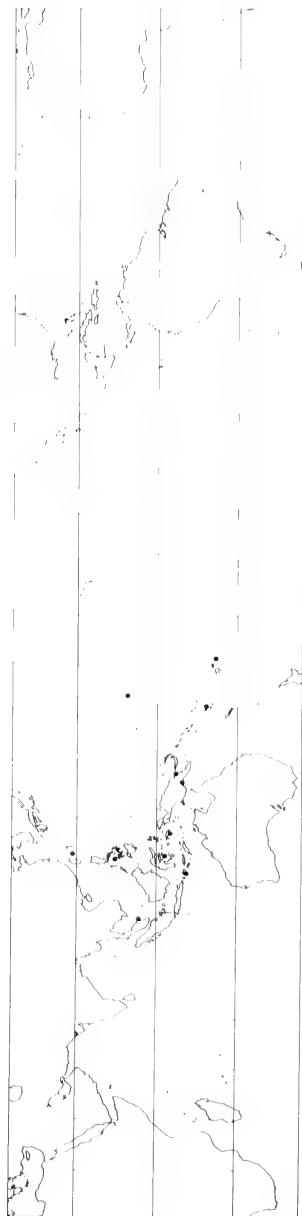


Figure 112. The distribution of *Zoophilus*. The genus contains one species, *Z. echinatus*.

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